APRIL 2020

ISSN 2053-7182

Pipe and Profile EXTRUSION

PE100: STANDING UP TO TOUGH CONDITIONS

INNOVATION IN CONTROL & INSTRUMENTATION

STANDARDS/TESTING ● RECYCLING/GRANULATORS

AMI

Bringing the plastics industry together

GET THE APP...

Pipe and Profile EXTRUSION

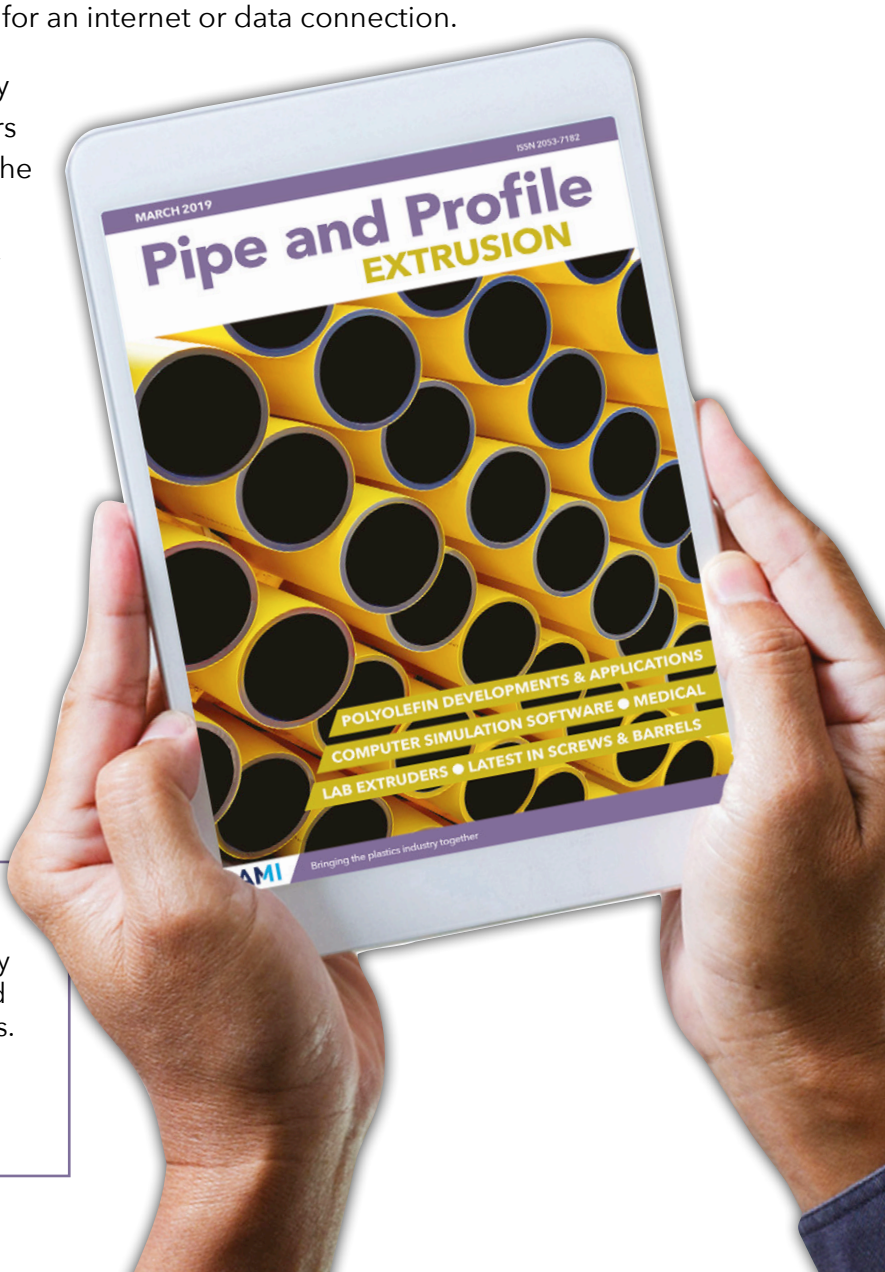
Pipe and Profile Extrusion magazine is available free-of-charge on iPads, iPhones and a huge range of Android-based tablets and smartphones.

Our dedicated Pipe and Profile Extrusion app is easy to use and provides completely free access to the latest edition of the magazine plus back issues – more than 15 in total. Once you have downloaded an issue, you can read it offline – there's no need for an internet or data connection.

The Pipe and Profile Extrusion app has already been downloaded by more than 5,400 readers in over 80 countries. Why not try it yourself? The app is available in Apple's App Store, iTunes and Google Play. Just search for 'AMI Plastics', or simply click on the relevant button below.

Download on the App Store

GET IT ON Google Play



Sponsor the app

Sponsoring the Pipe and Profile app is a highly effective and affordable way to put your brand before our audience of key industry specialists.

To find out more contact Levent Tounjer
Sales and Commercial Manager
E/ levent.tounjer@ami.international

Pipe and Profile EXTRUSION


PAGE 5

PAGE 13


PAGE 23


PAGE 31


PAGE 39

COMING NEXT ISSUE

› Pipe die developments › Pipe joining › Pressure pipes › Medical tubing

CONTACT US

AMI
Third Floor, One Brunswick Square,
Bristol, BS2 8PE, United Kingdom
Tel:+44 (0)117 924 9442
Fax:+44 (0)117 311 1534
www.ami.international
www.twitter.com/plasticsworld
Registered in England No: 2140318

EDITORIAL

Editor-in-Chief: Chris Smith
chris.smith@ami.international

Editor: Lou Reade
lou@pipeandprofile.com

Events and magazines director:
Andy Beevers
andy.beevers@ami.international

ADVERTISING

Advertisement manager: Claire Bishop
claire.bishop@ami.international +44 (0)1732 682948

Sales & commercial manager: Levent Tounjer
levent.tounjer@ami.international +44 (0)117 924 9442

Sales manager (China): Jenny Zhou
jenny.zhou@ami.international +86 13651 985526

DOWNLOAD MEDIA DATA

Conference
EUROPE
www.ami.ltd/attend-pipes

NEW DATES

Plastic Pipes in Infrastructure

Trends in the design, production, installation and exploitation of plastic pipes systems

27-28 October 2020, Hamburg Marriott Hotel, Hamburg, Germany

Sponsored by:

lyondellbasell
Advancing Possible

TECNOMATIC
TECHNOLOGIES FOR PLASTIC PIPES PROCESSING

Media supporters:

EPUJ EUROPEAN POLYURETHANE JOURNAL

Pipe and Profile EXTRUSION

Profile producer Eurocell grows both sales and profits in 2019

UK-based profiles manufacturer Eurocell has reported a 10% growth in sales for 2019.

The company posted sales exceeding £279 million (US$339m) for the year. The figures include sales from recent acquisitions in the building plastics division. Discounting these, the underlying sales growth was 8%.

At the same time, profitability (EBITDA) rose 5% to almost £32m (US$39m).

"We have reported robust financial results for 2019 and, despite Brexit-related and political uncertainty, delivered another year of strong sales growth and a good improvement in gross margin," said Mark Kelly, CEO of Eurocell.

In its Profiles division, the company reported sales of nearly £116m (US$141m), an increase of 7%. Profits here were flat, at nearly £18m (US$22m). In Building Plastics – which includes PVC foam products – sales increased by 12%, while profits rose 14%.

Kelly: "Another year of strong sales growth and a good improvement in gross margin"

Eurocell manufactured almost 55,000 tonnes of rigid and foam PVC profiles at its primary extrusion facilities, a 10% increase compared to 2018. This increased production was made possible through a capital expenditure programme in 2019 – costing around £5m (US$6m) – to improve manufacturing efficiency and increase co-extrusion and foam capacity by 30% and 15%, respectively. Overall equipment effectiveness improved from 71% to 73%, while scrap levels dropped from 9% to 8%.

The company has also continued to increased recycling: it used 13,400 tonnes of recycled PVC compound in the manufacture of co-extruded rigid profiles. This was 23% of overall material consumption (up from 9,500 tonnes, and 17%, in 2018).

"Despite very wet weather so far this year, we have made a good start to 2020: sales and margins for the first two months are in line with our expectations," said Kelly. "As yet, there has been no discernible impact on our business from Covid-19, although we remain very alert to this possibility."

■ Since Eurocell's results were announced, the company says it "will temporarily close for a period of three weeks".

› **www.eurocell.co.uk**

Vynova launches "bio" PVC

Vynova has launched a range of "bio-attributed" PVC resins. Available for both rigid and flexible applications, the new grades will be offered in a range of K-values and will be produced at its sites at Beek in the Netherlands and at Mazingarbe in France.

The resins are manufactured using renewable ethylene from second-generation biomass feedstock from SABIC's facility at Geleen in the Netherlands. The company said that this will reduce its fossil feedstock requirement and cut CO_2 emissions by more than 90%.

Vynova said the materials carry ISCC Plus certification.

"With these new resins, we are responding to increasing customer demand to take another step towards a more circular PVC value chain," said Jonathan Stewart, vice president of PVC business management.

› **www.vynova-group.com**

German converters report sales decline

GKV, the organisation that represents German plastics processors, reported a dip of around 1% in overall turnover last year.

It said that sales fell to €65.1bn in 2019, a fall of 1.2% compared to 2018. Within this, domestic sales fell nearly 2% to around €40bn, while exports fell almost 1% to just under €25bn.

As well as decreased turnover, processing volumes also fell – by around 1.2% to 14.6 million tonnes of plastic. In the same period, the industry's workforce increased marginally (by 0.3%) – taking numbers to 336,000 by the end of 2019.

The number of processing plants rose by 3%, to just over 3,000 facilities.

GKV's figures are not broken down into specific processes (such as extrusion). However, the construction sector – which is likely to account for most pipe and profile extrusion activity – saw an unchanged amount of material processed (5.3m tonnes), while turnover in the sector rose by 2% to almost €21bn.

All figures apply to plants with more than 20 employees, said GKV.

› **www.gkv.de**

UK's Polypipe reports small gains in 2019 results

Polypipe, a UK-based pipe manufacturer, has reported small gains in both sales and profits for 2019.

Sales grew by more than 3% to reach almost £448 million (US$545m). Pre-tax profits rose by the same amount, to exceed £60m (US$73m).

"Our strategy continued to deliver over the year, with revenue and profit growth despite ongoing market uncertainty and challenging trading conditions – particularly in the second half of the year," said Martin Payne, CEO of Polypipe. "Aside from the yet-unknown effects of Coronavirus on the wider economy, we would expect the current year to be a year of progress."

Polypipe made gains in 2019 despite "ongoing market uncertainty and challenging trading conditions"

Sales growth in the residential systems market – which comes almost exclusively from the UK – exceeded 6% to reach £260m (US$316m). Profits in this division grew by 15%, to more than £53m (US$65m).

However, results in the commercial and infrastructure sector declined: revenue remained almost static at around £187m (US$227m) while profits dipped nearly 11% to around £25m (US$30m). Export revenue from this division, which accounts for around 20% of its overall revenue, was nearly 5% higher than the prior year, with improved volumes in continental Europe and the full-year effect of its Permavoid acquisition. This was partially offset by further reductions in the Middle East as conditions in this market continue to be challenging, said Polypipe.

Polypipe made one acquisition during the year: Alderburgh, a UK specialist in storm water management and building protection systems.

The company also boosted the amount of recycled material it uses in it uses in its products from 40% up to 42%.

"This has been achieved through the further roll-out of our multi-layer extrusion process in our Residential Systems segment, helped in the latter part of the year by the acquisition of Alderburgh – which uses recycled plastic for most of its production," said Payne.

› **www.polypipe.com**

Orbia announces mixed results from its Wavin, Dura-Line and Netafim division

Orbia, the Mexican-owned chemicals company that was formerly Mexichem, has announced mixed results in its extrusion-based businesses.

The company said that sales in its Fluent business division -- which includes Netherlands-based pipe extruder Wavin, US conduit maker Dura-Line and Israeli pipe irrigation company Netafim – fell by 2% for the year, to US$4 billion.

It said this was partly due to lower sales from Wavin in Europe and South America. Also, Dura-Line saw a reduction in sales, which it said was mainly due to "a continued shift to a more profitable product mix as well as a reduction in India sales".

Sales at Wavin fell 5% to around US$2.3bn, while revenues at Dura-Line were 6% lower, at US$667m. However, both these declines were partly offset by a 12% increase in Netafim sales – taking them beyond US$1bn.

Despite the general dip in sales, profitability in the Fluent division increased. For 2019 as a whole, the company said EBITDA was US$590 million – up 17% from US$503 million in 2018.

For 2020 – assuming no major disruption in the global economy – Orbia says it is confident in delivering "mid-single digit EBITDA growth and stronger free cash flow generation". Orbia's overall sales for 2019 declined by 3%, to just under US$7bn.

Daniel Martinez-Valle, CEO of Orbia, said: "As we started doing in 2019, we will double down on operational excellence and focus on markets, products and solutions that will yield higher margins across our key verticals in 2020."

› **www.orbia.com**

MORE THAN MACHINE ENGINEERING.

WE ALSO PROVIDE DIGITAL SOLUTIONS TO MAXIMIZE YOUR PRODUCTION EFFICIENCY.

With our complete digital solutions for increasing efficiency, monitoring production, and controlling processes, we are paving the way for you to the future of plastics and rubber processing. Find out more now:
kraussmaffei.com/digitalization

KraussMaffei
Pioneering Plastics

AMI announces new dates for plastics industry expos in Essen

AMI has announced that its four focused plastics industry exhibitions, which were scheduled to take place at Messe Essen in Germany on 3-4 June, have now been postponed to 7-8 October 2020. Uncertainty created by the Coronavirus (COVID-19) led to the decision to delay the Compounding World Expo, Plastics Recycling World Expo, Plastics Extrusion World Expo and Polymer Testing World Expo.

Rita Andrews, head of exhibitions at AMI, said "We have been reviewing the fast-changing situation daily, and we have been consulting with exhibitors, Messe Essen, local government and health authorities. Our primary concerns are for the health and safety of all attendees at our events, and delivering the very best audience for our exhibitors. With these factors in mind, we have taken the decision to postpone the expos to 7-8 October."

The shows will remain in the same two halls at Messe Essen, retaining the same floorplans with five free-to-attend conference theatres. The aim is to retain the existing conference programmes, augmented with additional speakers over the coming months.

AMI announced the decision to postpone the expos on 23 March.

Andy Beevers, events director at the company, said: "We felt it was important to make and announce this decision now, in order to end the current uncertainty and to allow exhibitors, speakers and attendees to plan effectively for the new dates."

Exhibitor numbers for the 2020 shows are up by over 80% compared to AMI's launch event in 2018. More than 1,500 people have already registered to attend the 2020 expos and their bookings will transfer automatically to the new dates.

› **https://www.ami.international/exhibitions**

VTT of Finland is a partner in the two-year Beccu project – which will develop a concept for a process to capture and use carbon dioxide as a raw material for a range of chemicals. One of these is polyols, a precursor of polyurethane – whose uses include insulation products for the construction industry. The goal is to determine whether polyols can be profitably manufactured from bio-based carbon dioxide and hydrogen.

› **www.vtt.fi**

ADS grows sales by 17% to Q3

US pipe manufacturer Advanced Drainage Systems (ADS) has posted positive sales growth – but a profit decline – for the first nine months of its financial year.

Up to December 2019, sales increased by 17% to reach US$1.3 billion. However, this equated to a net loss of US$195m, compared to a profit of almost $US80m for the same period in 2018. The company said this was due to the effect of an Employee Stock Ownership Plan (ESOP).

In Q3 alone, sales grew nearly 24% to exceed US$393m, while profits were up around 43% to nearly US$24m.

Scott Barbour, president and CEO, said: "We generated strong results for the third quarter, with sales growth of 24%. We outperformed our construction and agriculture end markets."

In construction, sales grew 4%, while in agriculture, sales were up by 29%.

For the full-year, ADS expects net sales to be US$1.6bn to US$1.65bn.

› **www.ads-pipe.com**

Change in head of KM group

Frank Stieler, CEO of KraussMaffei Group, has resigned and been replaced by the company's current COO Michael Ruf.

Stieler had been CEO since July 2015. The COO position will not be filled.

Under Ruf's leadership, the company plans to streamline – in order to deal with the current economic conditions and the impact of the Coronavirus.

Bai Xinping, chairman of the board, said: "Dr Stieler has refocused and repositioned KraussMaffei as a plastic industry pioneer. We thank him for his work."

KraussMaffei is a public company listed on the Shanghai Stock Exchange.

› **www.kraussmaffei.com**

PLASTICS EXTRUSION WORLD EXPO EUROPE

New dates

7 – 8 October 2020

MESSE ESSEN, GERMANY

Co-located exhibition for the plastics extrusion industry

300+ EXHIBITORS
5 CONFERENCE THEATRES
1 FREE TICKET

across the four expos

NETWORKING PARTY 7 OCTOBER 2020

Get together with your customers and suppliers on 7 October

WHY VISIT? FIND OUT MORE

REGISTER FOR YOUR FREE TICKET

click here to find out more

Brought to you by: AMI

Colocated with: Compounding World Expo, Plastics Recycling World Expo, Polymer Testing World Expo

Proudly supported by: Film and Sheet Extrusion, Pipe and Profile Extrusion

you don't have to choose

You don't have to choose between productivity and environmental sustainability, they are both possible with our two important innovations:

Swarfless cut and chamfer technology for PVC pipes that saves raw materials, eliminates recycling, reduces maintenance costs, and assures a clean and noiseless environment.

Electric belling machines with short-wave infrared ovens that are active only during the heating phase and for the time needed to reach the final set temperature of the material, thus reducing energy consumption and avoiding scrap material.

Go green with us

SICA®

Plastic pipe processing machinery

www.sica-italy.com
tel +39 0544 88711 fax +39 0544 81340
info@sica-italy.com

European Union classifies titanium dioxide as inhalation carcinogen

The EU moved last month to classify TiO_2 as a category 2 suspected carcinogen by inhalation under its classification, labelling and packaging (CLP) regulation of substances and mixtures.

The move follows an opinion from the Risk Assessment Committee (RAC) of the European Chemicals Agency (ECHA). This has been consistently challenged by the Titanium Dioxide Manufacturers Association (TDMA), which argues that it was not based on new scientific evidence or understanding of potential harms and is contrary to available data of more than 24,000 workers demonstrating no link between exposure and cancer in humans.

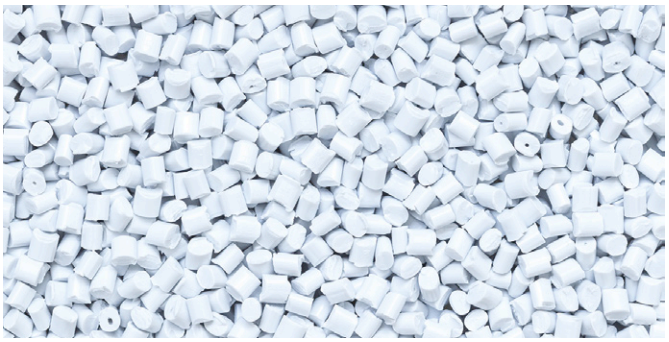


IMAGE: SHUTTERSTOCK

New rules apply to TiO_2-containing substances/mixtures in 2021

While TDMA acknowledges that the EU has attempted to limit the classification of TiO_2 to powders –the regulatory text refers to "powder TiO_2 and mixtures placed on the market in powder form containing 1% or more of TiO_2 which is in the form of, or incorporated in, particles" – it said the text introduces several new concepts and terms without providing meaningful definitions or interpretative guidelines. It predicted this will open the door to various interpretations.

"The EU's decision will apply on 9 September 2021 and the time until then will be needed to attempt to address ambiguities created by the text," said TDMA.

› **www.echa.europa.eu**
› **www.tdma.info**

Conference
UNITED STATES
www.ami.ltd/ProfilesUS20

Profiles

SAVE $300*
when you
book before
September 4, 2020

Delivering extruded profiles through the expert integration of skill, materials, machinery and process technology

November 2-3, 2020, The Westin Cleveland, Ohio, USA

Media supporter:

Pipe and Profile EXTRUSION

*Discount cannot be retrospectively applied or used in conjunction with any other offer

Ensuring greater accuracy of extruded products helps to raise their quality – while also keeping control of material costs

Extra dimension: advances in control and instrumentation

Dimensional accuracy has become a critical factor for extruded products like pipes and profiles. Some products – such as window profiles – are made to exacting tolerances in order to function correctly. In other cases – such as large pipe – maintaining dimensional accuracy helps to control material costs.

Many physical methods – ranging from sophisticated camera systems to terahertz technology – are used to control physical characteristics including size, ovality and shape. Unsurprisingly, several new systems were on show at last year's K2019 exhibition.

Pipe measurement

Sikora, for instance, showcased its Centrewave 6000/1600 for the first time at K2019.

The model, which measures the dimensions of hoses and tubes up to 1,600mm in diameter, uses millimetre wave technology. It measures continuously over 360° of the circumference of the pipe's wall thickness, diameter, ovality, inner profile and sagging.

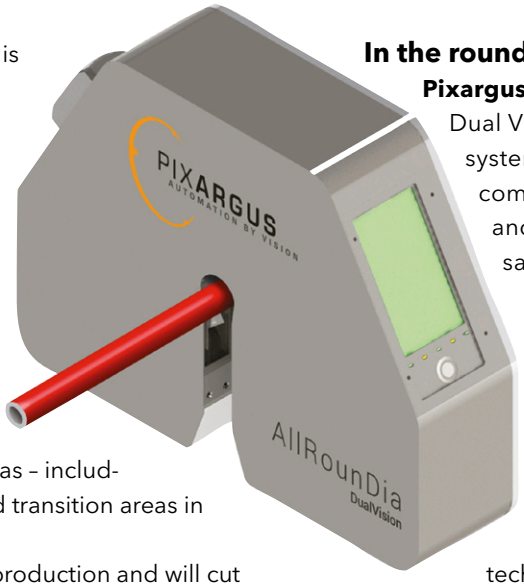
"The Centrewave 6000 not only impresses because of its dimensions, but due to its benefits resulting from the technology for the extrusion process," said Christian Schalich, head of sales for hose and tube at Sikora.

Nominal dimensions are quickly reached, start-up scrap is avoided, and processes are optimally controlled, said the company. Also, the system does not need any coupling media, as it measures precisely and independently to external influences – such as temperature or plastics material – and does not require calibration.

"The device also automatically determines the exact refractive index," said Schalich.

It defines the intensity and the speed at which radiation travels through the material, which helps to measure accuracy. Manual input of modifications

Main image: New algorithms allow the ProfilControl 7 S Corrugated Tube from Pixargus to inspect previously 'undetectable' areas in corrugated tubing



Right: Pixargus says its AllRounDia DV is the first single system to perform simultaneous contour measurement and surface inspection of round products

of the production conditions is not required, says Sikora.

Corrugated success

Pixargus says that its new inline gauge can measure the complete wavy structure of corrugated tubing gaplessly.

New algorithms allow the ProfilControl 7 S Corrugated Tube to inspect previously 'undetectable' areas – including the peaks and valleys and transition areas in between.

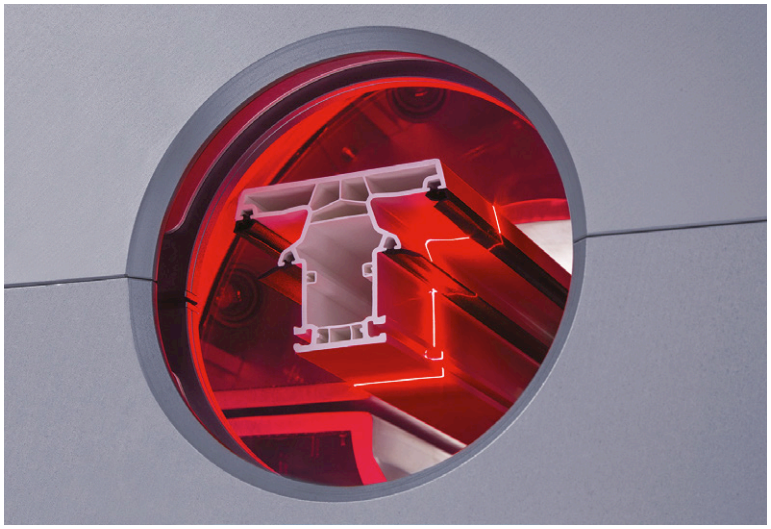
This reduces out-of-spec production and will cut process costs, says the company.

Corrugated tubing has become increasingly common thanks to its flexibility – which is due to their wavy structure. However, the structure can be difficult to inspect. A reliable inspection system must be able to differentiate between plane and curved surfaces and inspect them – continuously – according to different quality parameters.

Using technology from its PC7 S Tube inspection system, Pixargus has developed a new sensor head for corrugated tubing. Eight high-performance cameras capture the surface structure from different angles. New algorithms enhance the software, which can detect the change from plane to wavy and vice versa by masking out specific surface structures. Even very small flaws are visible – including holes, dents, blisters and poorly crimped joints.

In its standard version, the device is designed for tubing of up to 30mm. The scalable system can be integrated into Industry 4.0 environments and comes with all common interfaces, such as OPC-UA.

Below: The iProfilControl from Pixargus (iPC) combines dimension measurement with surface inspection at high extrusion throughput rates



In the round

Pixargus says that its AllRounDia Dual Vision is the first single-unit system that can perform complete contour measurement and surface inspection at the same time.

This system, which has a compact design, measures and inspects pipe, tubes and cables with a 100% defect detection rate, it says.

The hardware and software from the company's ProfilControl 7 technology have been adapted to the measurement of contoured products. The system measures around the complete circumference of the products using a single sensor head.

AllRounDia DV gives gapless, 360° measurement of round and oval contours. It does this by using a camera-based, laser-triangulation method. While conventional, axis-based measurements using the shadowing method cover only six single points, AllRounDia's optical sensors capture 8 million pixels, says the company.

"Each individual point can be decisive for the quality of the product," said Jürgen Philipps, managing director of Pixargus. "Although the single-point method is very accurate, it does not capture the area between the points, and detects only defects of relatively large topographic extension."

For a 1mm defect on a product 10mm size, inspecting at only six spots would leave 90% of the surface uninspected. AllRounDia, however, inspects each point with the same level of reliability and repeatability, he says.

"This is gapless inspection in the true sense of the word."

The specially developed lighting concept ensures that the field of vision and measuring field are homogeneously lit. For this reason, flaws in the material – such as fissures, inclusions and other high-contrast defects – are reliably captured.

Surface quality

Also at K2019, Pixargus launched a device that combines dimension measurement with surface inspection. Its iProfilControl (iPC) can be used to check a variety of products, including window profiles, cable conduits and skirting boards – at high extrusion throughput rates.

Flaws occurring during production can be

Follow us on...

Be the first to know when we publish a new edition, plus updates on our conferences and useful links.

Compounding WORLD | Plastics Recycling WORLD

Injection WORLD

Pipe and Profile EXTRUSION | Film and Sheet EXTRUSION

www.twitter.com/plasticsworld

HAVE YOU MISSED OUT?

Did you know every edition of Pipe and Profile Extrusion magazine back to November 2011 is still available for FREE viewing? That's more than 50 editions and some 2,500 pages of industry news and developments in materials, machinery and processing technology. **All FREE.**

To use this valuable resource, go to **www.pipeandprofile.com/archive** If you are already a subscriber, you will gain immediate access. If you have not yet subscribed, simply click the link – subscribing takes less than two minutes and means you will always know when a new edition has been published.

www.pipeandprofile.com/archive

Right: The iXact, from Inoex, can make 16,000 measurements per second

detected early and corrected in real time. This saves feed material and reduces out-of-spec products and costs.

Pixargus has adapted system capacity, the range of functions and the hardware to meet the requirements of the process. Starting with a four-camera model, the system can be scaled up to six or eight cameras, as required, to meet the needs of the process situation.

iPC S is the most compact solution for inspecting all visible surfaces. Special light-edge elements ensure that the measuring field is homogeneously lit, allowing the camera sensors to capture and process irregularities and defects that were difficult to detect in the past – including pinholes, pores, scratches, cracks and grooves.

iPC Dimension (DX) gives 360° geometry measurement – including widths, gaps, angles, radii and shapes.

"It detects even most minute deviations from the target contour thanks to its eight laser line sensors watching closely the dimensions of the inspected product," said the company.

The high number of optical sensors is needed to capture the complex geometry of the clamping grooves, which can only be measured with sufficient accuracy with cameras arranged at different angles and positions. The models of the basic series come with a number of features known from the larger ProfilControl 7. The hinged arrangement of the sensor head securely prevents the measuring field from being affected by parasitic light effects.

Below: iXray from Inoex uses X-rays to measure pipe wall thickness and diameter with micron-scale accuracy

Exacting accuracy

Inoex launched its iXact system, which makes 16,000 measurements every second to determine pipe diameter with high accuracy.

It uses semiconductor sensor technology and high-power LEDs to measure strongly vibrating tubes – thanks to its high measuring sequence frequency. The high-power LED make measurement of most transparent materials very simple, says the company.

As a 'plug & play' solution, it does not need any calibration and offers a difference function which registers any sudden variations. It can detect irregularities such as knots and necking on the measured extruded surface.

An extra camera helps to compensate measuring errors due to inclination. This increases the accuracy of the diameter measurement.

The two- or three-axis measurement operates at high speed and with a high precision – and is available in three different versions: for small-diameter products; for diameters up to 30mm; and for diameters up to 120mm.

The robust design ensures that knocks or temperature changes do not have any effect on measuring results.

X-ray specs

Also at the show, Inoex launched its iXray technology. The system uses X-rays to measure wall thickness and pipe diameter, with micron-scale accuracy.

It can be applied to single and multiple layer pipes, tubes and rubber products. The core pieces are X-ray components combined with semiconductor sensor technology. They allow a precise spatial resolution and accuracies in the micron range. Even with high line speeds the X-ray system supplies precise measuring results, on either two or three axes.

Standard iXray systems made by Inoex are designed for pipe dimensions from 0.6 to 110mm.

During development, Inoex focused on wall thickness and diameter measurement for multiple layers. This included aluminium composite pipes, fabric-reinforced pressure tubes, foam products, medical tubes and hoses as well as cables. The main focus is on reproducible dimensional product accuracy in the micron range and thus the quality assurance aspect.

In PVC extrusion, the centring of the extrusion die (such as for rubber tubing) or the thermal die head centring are achieved by way of an additional interface. Another advantage is that it uses the standardised process data interface OPC-UA.

X-ray systems of the iXray line have been designed to protect the operator from any risk. Because of their low radiation power, the systems

Zumbach

SWISS PRIME MEASURING SINCE 1957

Wall Thickness Measurement Made Easy

RAYEX S XT

- Precision measurement for wall thickness, eccentricity and diameter
- Easy and quick set up for new products
- Added longevity due to high-quality X-ray source

www.zumbach.com • sales@zumbach.ch

Above: WKT is using handheld Warp technology from Inoex to check the thickness of its PE pipe

operate well below permitted legal thresholds.

The system can be used in conjunction with iXact diameter-measuring systems, which can make up to 16,000 measurements per second per axis. They are often used for pipe or tube diameter measurement at the end of the extrusion line.

Other products on show at K2019 included: Warp XXL, which can measure the dimensions of pipes up to 3,500mm in diameter and is based on radar technology; Quantum 360, which uses terahertz technology; and Aurex, which uses ultrasonics.

Terahertz control

Prior to the show, German pipe manufacturer Westfälische Kunststofftechnik (WKT) began using Inoex terahertz technology to measure pipe wall thickness. WKT is using handheld Warp technology to measure the wall thickness of extruded mono layer pipes. It can perform accurate inline and offline random measurement checks within seconds, says Inoex.

The battery-powered handheld system has a running time of around eight hours, which met WKT's needs. Measuring pipe thickness directly at the end of the vacuum tank gave the option to intervene at a very early stage – leading to large savings. Historically, the company had used ultrasonic measurement to check dimensions at the end of the line. Warp portable offers non-destructive, contact-free measurement of wall thicknesses between 5 to 110mm.

Türkayan Güneyik, operations manager for PE at WKT, says the simple handling is the key benefit. Two positioning aids – for different pipe diameters – make it easy to position the device correctly. Measurement is triggered at the push of a button. Within seconds, the wall thickness and timestamp are available on the display. An internal acceleration sensor provides extra information on the measuring angle of the device towards the pipe.

This information helps the line operator carry out a fast manual centring of the extrusion die. Logged data can be exported via USB stick or optionally downloaded by WiFi on a local computer. WKT uses this data for measuring data protocols in its data base.

Warp portable can measure all common types of plastic, including PE, PP, PA and PVC.

Medical demonstration

Graham Engineering showcased live demonstrations at K2019. A range of its extrusion systems – equipped with its Navigator control system – were used to make end products, including medical tubing.

Real-time graphical display is a feature of the Navigator control system, said the company. High visual correlation between the touchscreen and machine function ensures an intuitive user experience for ease of use and rapid learning, it added. Control is delivered via hardware that is designed to withstand harsh industrial conditions such as vibration, electrical interference, high temperature, and humidity.

"Navigator uses an industrial PC with a Windows platform to enable intuitive, integrated extrusion process control," said David Schroeder, CEO of Graham.

Originally developed for Graham's extrusion blow moulding systems – and later adapted for

Right: American Kuhne ran a medical tubing line at K2019, including XC300 Navigator control

Vakupulse

Dense phase conveying material system

- No abrasion of conveying pipeline
- Low speed vacuum dense-phase conveying
- Low energy consumption
- Low noise emission
- No degradation of delicate and soft products

penta.piovan.com

Penta
Piovan Group

Welex sheet extrusion lines – Navigator controls are now available for American Kuhne extrusion systems such as those for medical tubing, profiles and wire and cable. There are three levels of functionality: XC100 for stand-alone extruders; XC200 for one or more extruders in simultaneous operation; and XC300 for integrated production lines with the extruder and components such as a puller, water bath, or winder.

During the show, **American Kuhne** ran a tri-layer tubing line, comprising three compact modular extruders and the XC300 Navigator control with an integrated TwinCat Scope View data-acquisition system.

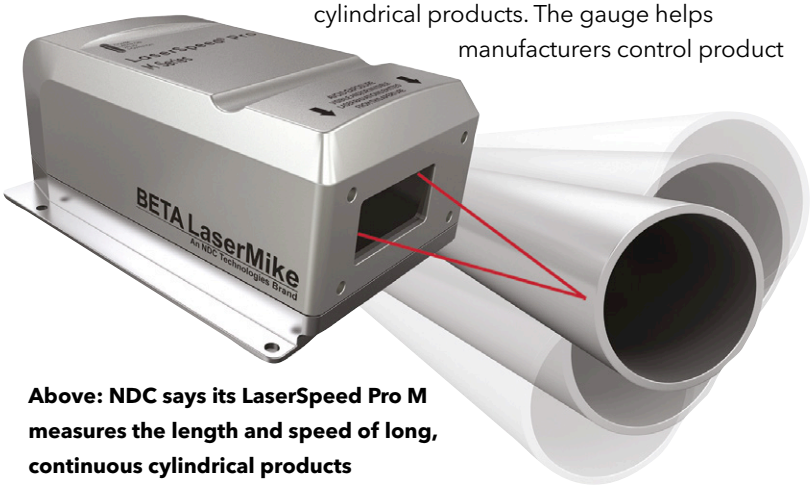
Justin Kilgore, vice president of engineering at Graham, added: "The ease and ability to integrate is boundless. From synchronised supervisory control of a line to internet for remote support and trouble-shooting, Navigator offers integration without limits."

Length and speed

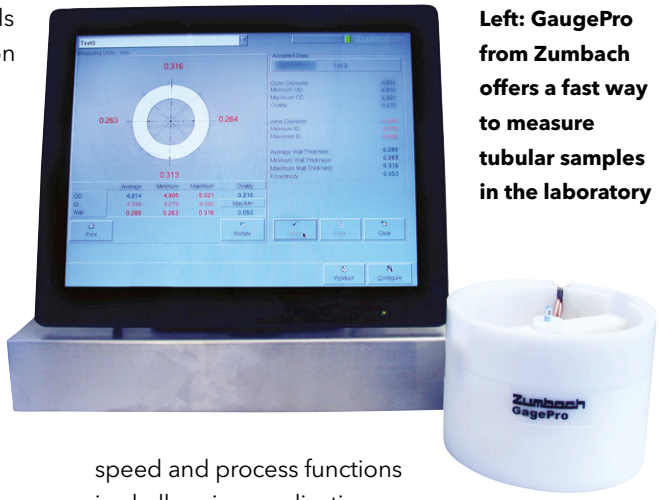
NDC has developed a length and speed gauge for measuring the production of long, continuous cylindrical products.

These types of products are not always well-guided and can move off-axis or out of the measurement range. This makes it difficult for traditional Laser Doppler Velocimetry (LDV) gauges to keep the laser on the product's surface. This can result in hard-to-obtain or unreliable length and speed measurements.

NDC says that the LaserSpeed Pro M series gauge – part of the Beta LaserMike product family – solves the problem. The patent-pending gauge uses a new type of LDV optical technique to provide reliable length and speed measurements of small, bouncing and unguided cylindrical moving products. This includes small plastic pipe, tube and hose, and other hard-to-measure cylindrical products. The gauge helps manufacturers control product speed and process functions in challenging applications – resulting in less product give-away, less scrap, higher productivity and reduced downtime



Above: NDC says its LaserSpeed Pro M measures the length and speed of long, continuous cylindrical products



Left: GaugePro from Zumbach offers a fast way to measure tubular samples in the laboratory

Contactless gauge

Zumbach says that its GaugePro offers a fast, precise way to measure and record tubular samples in the laboratory.

Conventional contact measuring equipment – such as calipers, micrometers and dial gauges – rely heavily on the skill of the person making the measurement. Different handling of the tools may result in significant variations in results.

The new device can measure tubular samples in a contactless way. Using ultrasonic technology, dimensions such as wall thickness, inside diameter and outside diameter are measured instantly. In addition, ovality and eccentricity can be determined.

An inserted sample is measured immediately at four fixed measuring points. Due to the rotation function, the measurement can be extended to eight measuring points. This increases the coverage around the product and all variations in wall thickness become visible. Automatic self-calibration ensures that the measured values are accurately and reliably recorded even under changing environmental conditions.

All measured values are displayed on a large user interface. Several measured tube samples can be summarised in a common statistic. Logging the measurement results is thus fast, easy and reliable.

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.sikora.net**
- **www.pixargus.com**
- **www.inoex.de**
- **www.grahamengineering.com**
- **www.americankuhne.com**
- **www.ndc.com**
- **www.zumbach.com**

Medical Tubing & Catheters

23 - 24 September 2020
San Diego, CA, USA

Improving polymeric medical tubing and catheters, from design, materials and production to applications

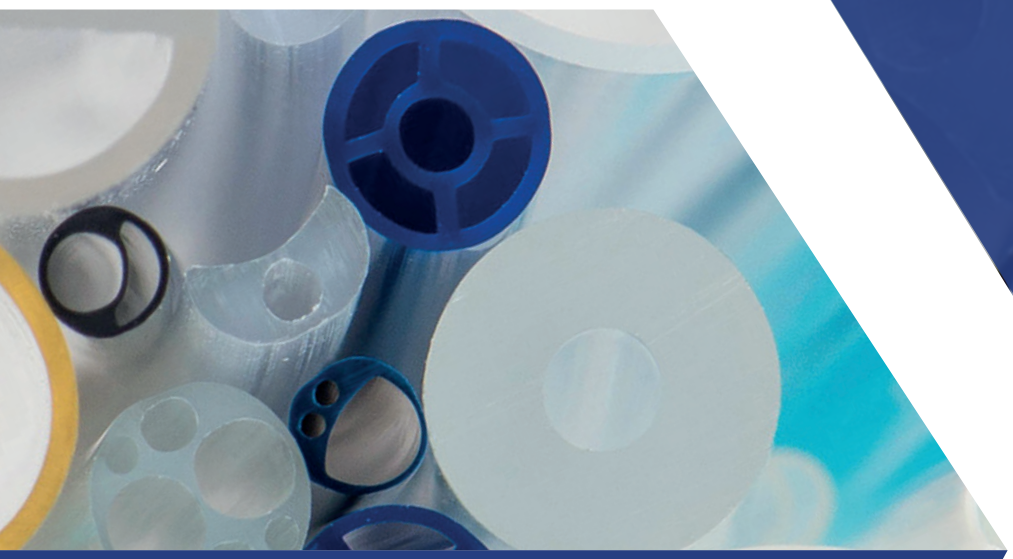
RESERVE YOUR PLACE

Join us for the 5th edition of Medical Tubing & Catheters.

This conference will address the latest tubing and catheter developments, including manufacturing, materials, assembly, design, end-user feedback, regulatory changes and much more.

HEADLINE SPONSOR

CIMAC



Book your place at
www.ami.ltd/attend-tubing-USA

AMI

Also sponsored by:

DAVIS-STANDARD
Where your ideas take shape.

Media supporters:

Medical Device Developments

Pipe and Profile EXTRUSION

NEW DATASET

GLOBAL POLYMER DEMAND DATA

Detailed consumption of:

14 Polymers

10 Processing techniques

7 Regions of the world

Key information to quickly and efficiently develop your business strategy

- Get granular market data and intelligence to support business planning or investment projects
- Identify the size and structure of demand, discover where market opportunities lie and adjust strategies accordingly
- Understand plastics industry dynamics which are increasingly under the spotlight as circular economy concerns intensify

E | sales@ami.international
www.ami.ltd/polymer-demand-data

FIND OUT MORE

AMI

Robust research and expert data for the global plastics industry

Setting high standards in pipe and profile extrusion

Standards for products such as pipes and profiles help set a quality benchmark, while testing regimes help to ensure that these guidelines are being followed

Setting appropriate standards is an important way of ensuring that extruded plastic products – especially critical ones such as pipes – adhere to agreed guidelines. With this in mind, US-based **Plastics Pipe Institute** (PPI) recently published a series of new documents with guidance on conduits and pipe testing.

The most recent covers ovality in high-density polyethylene (HDPE) conduit, including cable in conduit. The **document**, TN-61 – *Coilable HDPE Conduit Ovality and Coil-set* – is available on PPI's website. It explains what can cause ovality and coil-set in HDPE conduit products and describes how installers can correct or reduce it during installation.

The primary factor in ovality is the diameter of the conduit, and the secondary factor is the bend radius of the coiled conduit. Others include time stored in the coiled configuration, and ambient temperature and temperature cycles while in storage.

"Users and installers must be aware that a certain amount of ovality is normal in a flexible product like HDPE conduit," said Patrick Vibien, director of engineering for PPI's Power & Communications Division (PCD). "This flexibility is one of a major advantage of HDPE conduit, allowing nominal sizes from 0.5 to 6in to be coiled onto reels or supplied as coils."

However, he said that excess ovality could restrict the installation of cables into installed conduit. For this reason, the document lists several techniques for mitigating ovality, and describes how to re-round conduit during installation using proven techniques, to prevent ovality from causing problems in the field.

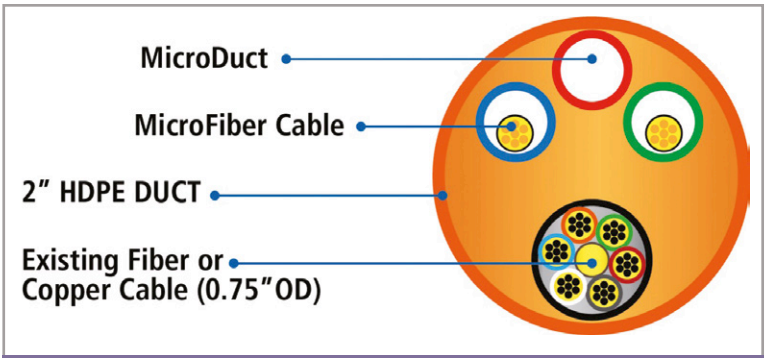
Main image: New advice from PPI explains how to correct or reduce ovality during installation of HDPE conduit

Cable replacement

PPI has also published advice on adding or replacing cables in HDPE conduit. The **document**, TN59, explains options for sub-dividing larger conduit.

"It compares each technology's installation techniques, advantages, and protection capabilities, along with cable installation considerations," said Lance MacNevin, director of engineering for PPI's power and communications division. "It is intended to assist specifiers, contractors, and others with useful selection criteria when determining which technology to employ, especially when considering the need to add additional fibre into conduit in the future."

HDPE innerduct or micro duct, and fabric dividers – sometimes referred to as fabric innerduct – are three options for sub-dividing an installed empty or occupied conduit for current and future installation of additional fibre optic cables. Both HDPE conduits and fabric dividers can be installed into empty or occupied conduits. Occupied



The robust physical properties of HDPE conduit help to simplify the addition of extra cables

conduits are in-situ conduits, typically where one or more cables are already installed. When HDPE conduit or fabric divider is installed into occupied conduits, the process is referred to as an override.

"Fabric divider does not provide the wide range of physical properties and performance capabilities inherent in HDPE innerduct or micro duct," said MacNevin. "Cables can be jetted into HDPE innerduct and micro duct over long distances – which lowers cable installation costs. Jetting is not an option for fabric dividers – which require the cables to be pulled or winched into place, resulting in shorter installation distances."

Factors like this make HDPE conduit a more versatile choice, he said.

NDT evaluation

PPI has also published an overview of non-destructive testing (NDT) and evaluation techniques that have been introduced into the plastic pipe industry. The document – *TN-60, Inspection of Plastic Pipes, Fittings and Joints Using Non-Destructive Test Methods and Evaluation* – includes sections about research, NDT/NDE considerations, inspector qualification and evaluation procedures. The **document** is available for free at the PPI webpage.

"The goal of TN-60 is to bring awareness to a number of factors when using NDT for inspecting plastic pipes, fittings and joints, while emphasising that due diligence is needed when selecting an NDT technology and inspection team," said Sarah Patterson, technical director of PPI. "There is a high degree of complexity in reading the scans from an NDT inspection."

There is rising interest in the topic, says PPI, because NDT was previously done by individual firms. Now, had has made its way into the standards organisation for the inspection of plastic pipes, fittings and joints.

Randy Knapp, engineering director of PPI's Energy Piping Systems Division (EPSD), added: "It is important for the industry to know about NDT and NDE. This document will play an important role in moving these non-destructive processes forward responsibly."

Chlorine testing

Several speakers at last year's *Plastic Pipes in Infrastructure* conference in Germany – organised by **AMI** – addressed how to test the effects on chlorinated chemicals on pipe.

Marton Bredacs, a researcher at the **Polymer Competence Centre Leoben** (PCCL) in Austria, told delegates of a preliminary model to assess the effect of chlorine dioxide on the lifetime of PE pipe grades.

These types of chemicals cause effects such as

Conference
EUROPE
www.ami.ltd/PSD-attend

Headline sponsor:
Biesterfeld
Competence in Solutions

Polymer Sourcing & Distribution

Disruptive forces, challenges and opportunities in global polymer sourcing & distribution

14-16 September 2020, Marriott Hotel, Hamburg, Germany




Also sponsored by:

PLASTICFINDER
The number one online plastics marketplace

Media supporters:

Compounding WORLD | Injection WORLD | Film and Sheet EXTRUSION | Pipe and Profile EXTRUSION | Plastics Recycling WORLD

*Discount cannot be retrospectively applied or used in conjunction with any other offer

Multiple methods to analyse surfaces

At the Profiles conference in Cologne in November, Michael Schiller, of **HMS Concept**, told delegates that various analysis methods can be very revealing when studying the surface of PVC profiles and other products.

He said that a range of techniques – including colour measurement, FTIR and Raman spectroscopy and X-ray fluorescence (XRF) can pinpoint specific problems, including pinking, pitting and various reasons behind weathering damage.

In one case, FTIR helped to identify that pitting on PVC pipe – which contained calcium-zinc stabilisers – was caused by sublimation of pentaerythritol in vacuum ventilation. FTIR was also used to identify oxalic acid salts during natural and artificial weathering of white PVC window profiles. One possible source of oxalic acid is pollen.

"In some cases, using different methods might help to understand the source of the problem," said Schiller.

■ The next *Profiles* conference from AMI is held in Cleveland, USA on 2-3 November 2020. For more details, contact Stephanie Hume (**stephanie.hume@ami.international**) on +1 610 478 0800.

surface embrittlement, which causes cracking and later failure.

"The goal is to determine the effect of ClO_2 on crack initiation time depth," he said.

In tests, samples were exposed to ClO_2 and tested using the cracked round bar (CRB) and compact tension tests – as well as by essential work of fracture (EWF). They were also studied with electron microscopy.

Bredacs said that the advantages of the new model included a reasonable testing time – of a few months – that was ideal for material ranking and development. It also allowed extrapolation to relevant conditions. The EWF technique showed promising preliminary results, he said, and could lead to more accurate material ranking.

Cracking with age

Benjamin Rabaud, materials cluster manager at **Suez**, said that chlorinated chemicals have an ageing effect on pipe – including cracking of the inner pipe wall and blistering of the inner surface.

The effects can be serious, he said – pointing out the chlorine dioxide caused very high degradation in 30% of HDPE in tests.

"For some water networks, a 50-year life expectancy is questioned," he said.

While networks in northern Europe fared much better (with chlorine and ammonium chloride causing only "moderate degradation" in 4% of samples), he said that sustainable growth of plastic pipe water networks required new types of material: while a pipe made from 'best quality' standard PE resin had twice the projected lifetime of one made from the 'worst standard resin', he said that a grade with 'chlorine resistance' showed a 425% improvement.

"HDPE with disinfectant resistance should be implemented for demanding networks," he said.

Saving time and energy

Juergen Wuest, deputy managing director of the German Plastics Center (**SKZ**), explained an energy- and time-saving method for qualifying PE pipe grades for long term applications at 40°C, using a high-pressure autoclave test (HPAT).

While a typical oven test takes more than 5,000 hours, a typical HPAT test will take around 1,000 hours, he said – and uses around one-seventh of the energy.

An HPAT test is typically carried out at high temperatures (60-90°C) in an aqueous medium of variable pH.

The sample ages due to the high temperature, and the presence of oxygen. Samples are removed after specific exposure periods and subjected to tensile testing. Results are extrapolated to 'normal' conditions – such as 40°C and atmospheric pressure.

"With oven ageing, no estimation is possible after four years, as the test is still running," he said.

"With HPAT, the lifetime estimation with activation energies meets the literature values in an acceptable time."

■ Due to the Coronavirus pandemic, this year's *Plastic Pipes in Infrastructure* conference has been rescheduled – and will now take place on 27-28 October in Hamburg, Germany.

For details, contact organiser Nicola Charlesworth (**nicola.charlesworth@ami.international**) on +44 (0)117 314 8111, or visit the conference **website**.

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.plasticpipe.org**
- **www.ami.international**
- **www.pccl.at**
- **www.suez.com**
- **www.skz.de**
- **www.hms-concept.net**

PLASTICS EXTRUSION WORLD EXPO

NORTH AMERICA

PIPE, PROFILE AND TUBING EXTRUSION

November 4 - 5, 2020
Huntington Convention Center
CLEVELAND, OHIO, USA

Connect with your target customers

Connect with your target customers in a cost-effective and time-efficient way at AMI's focused exhibition for the pipe, profile and tubing extrusion industry.

More than 250 exhibitors have already signed up for the Cleveland shows including:

Experience Addex · ADDEX · ABS ADVANCED BLENDING SOLUTIONS LLC · CLARIANT · WINDMOELLER & HOELSCHER · MAGUIRE SYNCRO · PTI · Reifenhäuser EXTRUSION SYSTEMS · DAVIS-STANDARD Where your ideas take shape.

BOOK YOUR BOOTH

To book your booth, contact:

exhibition_sales@ami.international
+1 610 478 0800
na.extrusion-expo.com

Brought to you by: AMI

Colocated with: COMPOUNDING WORLD EXPO · PLASTICS RECYCLING WORLD EXPO · POLYMER TESTING WORLD EXPO

Proudly supported by: Film and Sheet EXTRUSION · Pipe and Profile EXTRUSION

PLASTICS EXTRUSION WORLD EXPO

POLYMER TESTING WORLD EXPO

PLASTICS RECYCLING WORLD EXPO

COMPOUNDING WORLD EXPO

New dates

7-8 October 2020

MESSE ESSEN GERMANY

More than 300 companies have already booked their stands including:

COLORS & EFFECTS · BASF We create chemistry · FARREL POMINI continuous compounding systems · coperion confidence through partnership · FEDDEM · FRONTIER LAB · SOLVAY asking more from chemistry® · brabender TECHNOLOGIE · MAAG group a DOVER company · VEOLIA · BOREALIS Keep Discovering · Starlinger · attero energiek met milieu · MIXACO MIXACO USA LLC · Krauss Maffei Pioneering Plastics · RODEPA PLASTICS · van werven · B+B ANLAGENBAU HEILIG GROUP · ECON · CMG GRANULATORI · EREMA PLASTIC RECYCLING SYSTEMS · Reifenhäuser EXTRUSION SYSTEMS · CABOT · Vecoplan® · Dynisco · BUSS excellence in compounding · INOEX THE FUTURE OF EXTRUSION · KAMADUR WW van Poppel Holding BV · Specialities Ltd. FALCONE · COLLIN LAB & PILOT SOLUTIONS · APK · AIMPLAS PLASTICS TECHNOLOGY CENTRE · Fraunhofer LBF · Reverté CALCIUM CARBONATES · LKAB · Chemours™ · BÜHLER · MPI chemie · NORDMANN · Nordson · AZO. · cpm EXTRICOM EXTRUSION Your Partner in Productivity · ENTEX® Der Planetwalzenextruder · Macchi · AQUAFIL ENGINEERING · Automotive Compounding Industry · IMIFABI tune in to innovation · JWELL · enma BestgrindTech · ICMA SAN GIORGIO Advanced Compounding and Extrusion Systems · INTERFACE POLYMERS · TECHNOVAA PACKAGING INNOVATIONS · EUROPIREN · HPF The Mineral Engineers A DIVISION OF QUARZWERKE GROUP · BEKAERT better together · norner The Polymer Explorers · PROTECTION THAT LIVES ON MICROBAN

Brought to you by: AMI

Proudly supported by: Compounding WORLD · Film and Sheet EXTRUSION · Pipe and Profile EXTRUSION · Plastics Recycling WORLD

Book your stand today

GET YOUR FREE TICKET

To book your stand, contact:
exhibition_sales@ami.international / +44 (0) 117 924 9442

KONICA MINOLTA
NGR PLASTIC RECYCLING TECHNOLOGIES
IMERYS Performance Additives
BRENNTAG
CLARIANT
kaneka
nanocyl
KISUMA
Brabender
SIKORA Technology To Perfection
Piovan Piovan Group
SCIENCES COMPUTERS CONSULTANTS
C.A.PICARD INTERNATIONAL
OUR PEOPLE MAKE THE DIFFERENCE
J-TEC MATERIAL HANDLING
MAGNESIA GERMANY
WITTE PUMPS & TECHNOLOGY
JSW THE JAPAN STEEL WORKS, LTD.
THEYSOHN Extrusion
Leistritz
EVONIK POWER TO CREATE
POLYSCOPE fresh thinking, great products
KENNAMETAL CONFORMA CLAD
X-COMPOUND Plastic compounding plants
IMCD
LESUN
PLASTIC SYSTEMS
WACKER
佳易容 Fine-Blend
Grolman 1855 International Distribution
Polycompound AG
schenckprocess
FILTEC Plastic Pelletizing Precision
EPS RECYCLE
ZIEGLER MINERALS
LAB TECH ENGINEERING COMPANY LTD
MONTELLO Recovery and Recycling Industry Plastic - Fertilizers - Energy - Biomethane
ACERETEC RECYCLING SYST
Trendelkamp
MARIS
ELIX POLYMERS
BEIER 贝尔机械
motan colortronic
extruder experts
FIMIC ITALIAN MELT FILTER
SCHWING TECHNOLOGIES
get recycling
KRONES
POLYSTAR
binova COMPOUNDING & RECYCLING
KMI INDUSTRIAL MINERALS
Unipetrol ORLEN GROUP
BANDERA EXTRUSION INTELLIGENCE
Bronkhorst Flow Technology
UNIBROM CORP
plasmec Excellence in Mixing
euroceras
and many more...

www.ami.international/exhibitions

Thermoplastic pipe extruders in Europe

Research the industry and increase your market share

Growth in plastic pipe production is expected in the next five years, stay updated on the key players in this market.

Access verified data of over 470 European pipe producers to:

- Focus on the level of pipe activity in each country
- Create your own industry analysis
- Interact with the decision makers at each site
- Merge verified data into your own system

FIND OUT MORE

E | sales@ami.international
www.ami.ltd/pipe-database

Second use: materials recycling & granulators

A wide range of recycling machinery – from granulators to shredders – have recently been introduced to the market, extending the choices available to end users

Main image: At K2019, Bunting showed its expertise in magnetic separators and metal detectors

In the face of the Coronavirus epidemic, K2019 may seem a distant memory but it remains the most recent major platform for technology launches, including all kinds of recycling machinery – ranging from shredders and granulators to full recycling lines and a variety of sorting machinery.

Magnetic performance

Bunting Europe showcased its expertise in magnetic separators and metal detectors for the recycling and plastics industries.

In virgin plastic manufacturing processes, metal damages processing equipment and the quality of the end-product. Recycled plastic commonly has both ferrous and non-ferrous metal contamination, and removal is vital to enable the reuse of the waste material, says the company.

Bunting's portfolio includes a wide range of magnetic separators and metal detectors to detect and remove metals.

Its FF and HF drawer filter magnets are the most commonly used magnetic separators in the plastics sector. Visitors saw both standard and manual-clean (MSC) designs, which all use high strength neodymium iron boron (rare earth) magnets. In operation, plastic beads or shredded plastic waste falls through the drawer filter under gravity, while ferrous metal is attracted to the magnets.

The company displayed its new FF350 drawer filter magnet in Europe for the first time. The FF350 enables processing material at higher temperatures. High heat is damaging to standard rare earth magnets and the new design maintains magnetic strength at temperatures up to 350F (175°C). There are also changes to the housing, window and access fixings to provide trouble-free operation at these temperatures.

The company also displayed the plate magnet (with and without tapered step) and grate magnets (round and square).

"Our experience in solving metal contamination issues in the plastics sector is second to none," said Simon Ayling, managing director of Bunting Europe. "Without removing metal from waste, the recycling of plastic is simply not possible."

Technology evolution

CMG made K2019 the platform for the launch of its new Evoluzione series of granulators for post-consumer recycling.

It said the new EV916 and EV616 models are high-performing, versatile, efficient and sustainable. The model on display at K2019 was the EV616, a nine-tonne machine with sufficiently moderate dimensions to be positioned in the stand.

Giorgio Santella, general manager for sales and

marketing, said CMG refers to the Evoluzione series as 'supergranulators'. There was good feedback to the new technology from visitors to CMG's stand, he said, identifying three key features that generated interest.

The first is the Evoluzione's cutting chamber, which is made of CNC machined steel parts, all 'bolt-and-dowel' assembled to provide precision of assembly to the 100th of a millimetre and precision of cutting to the 10th of a millimetre. A completely assembled cutting chamber allows easy maintenance when a part must be replaced. The assembly includes replaceable Hardox plates.

The Evoluzione's Adaptive Motor Power (AMP) control and EISA type motor were also attractive to visitors, said Santella, as these provide the highest degree of reliability and operational energy efficiency. The AMP can adjust the power of the motor automatically to determine the best operational condition so the regrind has the most homogeneous dimensions, eliminates powder and reduces deterioration of rotor and bed knives.

Santella said another important feature of the Evoluzione is its Industry 4.0 controls that allow the user to have a full diagnostics screen indicating all operational conditions of the granulator, and that enables connectivity via the OPC-UA protocol to export any of the operational parameters to external systems.

"Predictive maintenance and auto adjustment to the conditions of operation of the recycling line are additional distinctive and unique features of the Evoluzione granulators," he said.

Right: CMG's EV616 granulator is part of its Evoluzione series

The "other star" of CMG's K2019 exhibit, said Santella, was its new VP regrind evacuation system which avoids the creation of dust by using different technology to a conventional evacuation system's through-blowers. He explained: "These are fans that are capable of pulling the regrind off the granulator and push the same to the receiving cyclone. The latter operate in a much more efficient way, pulling the regrind all the way to the cyclone receiver, allowing no dust generation by friction into the blower impeller or against the conveying pipe walls, and no powder pollution at the point of discharge into the holding bin or storage container, as the cyclone receiver is kept under negative pressure all the time."

Close control

Hellweg presented new Industry 4.0 controls for its machinery at K2019.

It showed its MDSi 150 granulator with new digital Smart Control system which enables networked communication with upstream and downstream components, as well as with operators, in line with Industry 4.0 standards. The new system measures and stores power consumption as well as, for example, rotational speed and bearing temperatures and monitors the service life of bearings, blades, screens and the drive V-belts. This new Smart Control system is available for all Hellweg granulators from the 150 series upwards.

The company said that monitoring mechanical mill components enables predictive maintenance to avoid unplanned production downtime, while possible faults and damage can be detected at an early stage. A visual alarm informs the operator of the need to replace a part due to wear. An active V-belt monitoring system automatically switches off the granulator in the event of a deviation from the nominal value.

Hellweg's new "boost operation" option enables a short-term increase in grinding performance, in order to compensate for production-related fluctuations. In addition, certain rotational speed ranges have been defined for various plastics, due to which, for example, low melt-temperature granulation can be performed continuously without problems arising, so that water-cooling is not required.

It said that recording of power consumption allows conclusions to be drawn about the specific energy input when grinding certain plastics to defined grain sizes. Smart Control evaluates measured power consumption over extended periods of time. The operator can use a digital ammeter in real-time operation and access detailed statistics that have been compiled over

Conference
EUROPE
www.ami.ltd/reg-attend

Plastics Regulations

Responding to new and future regulatory developments that will impact on the plastics supply chain

2-4 November 2020, Pullman Cologne, Cologne, Germany

Sponsored by:

Verisk 3E™
Intelligent compliance. Sustainable progress. **A safer world.**

Media supporters:

CHEMLINKED
Injection WORLD
Compounding WORLD
Film and Sheet EXTRUSION
Pipe and Profile EXTRUSION
Plastics Recycling WORLD

The CPD Standards Office
CPD PROVIDER: 41162
2019-2020
www.cpdstandards.com

*Discount cannot be retrospectively applied or used in conjunction with any other offer

AMI

STRATEGIC CONSULTANTS TO THE GLOBAL PLASTICS INDUSTRY

Our team of plastics industry experts are here to provide you with independent market intelligence on key sectors including;

- Consumer packaging and industrial films
- Compounding and masterbatch
- Energy and infrastructure
- Polymer distribution
- Specialist markets

Make informed decisions with

- Market reports and data
- Bespoke market research
- Due diligence and merger & acquisition analysis

Contact us to find out more

sales@ami.international

www.ami.international/market-reports

PHOTO: HELLWEG

Left: New MDSi digital Smart Control version of Hellweg's established MDS 150 granulator

long-term operation. Granulation process efficiency can be assessed by comparison with stored reference values, and, if necessary, optimised.

Other features include standardised soft starting of the motor and a new motor brake to enhance energy saving and safety. Power consumption can also be reduced with a new "eco" operating mode, as this adapts rotational speed to input quantity.

Meanwhile, **Bruno Folcieri** highlighted the Top 1500 D930 from its Easy Power range. The granulators in the Easy Power range are large machines using a heavy steel construction, including the rotor which is made from a solid block of hardened steel forged without any welding. The company says the Top line has features that allow it to maximise efficiency and productivity by guaranteeing high production levels and reduced maintenance times. Another feature is the versatility that allows it to work in either wet or dry conditions, the company said.

Operating in the wet

Herbold Meckesheim used K2019 as a platform to launch new technology for plastics recyclers. The new EWS 60/210 high-capacity shredder was developed for both dry and wet operation and is said to be very robust and durable. The development work focused on requirements needed in the crusher stage in the recycling process, such as the need to deal with foreign bodies. The company says it focused on making a perfect wear-protected rotor that, in addition to custom knife configurations, is equipped with bolted armour plating and a special grinding chamber seal.

Herbold Meckesheim also showed a new two-shaft DWS shredder, which has a stator positioned in the middle. Due to the large surface area of the rotor, the machine has a very good feed performance and is suitable for materials that can only be fed in doses using conventional shredders such as big bags or high-volume containers, says the company.

Other company products on show included SB series granulators with force feeding, the new VWE 700 prewashing unit, mechanical and thermal dryers and HLR label removers.

Combination unit

Hosokawa Alpine has developed a combined shredder and granulator.

The Polyplex PPC 50/120 has a vertically arranged rotor with a top-mounted shredder and granulator section underneath.

"Granulator fineness values are achieved in a single step," said Josef Zöttl, senior sales manager in the company's recycling and granulators division. "The joint drive makes the size reduction far more energy-efficient."

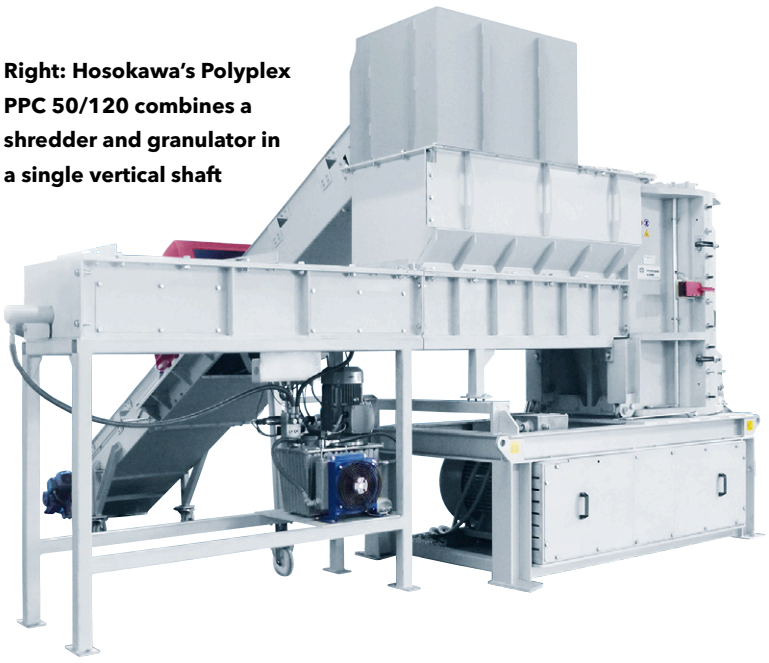
With the aid of an intake unit, feed material is automatically dosed and charged to the shredder-granulator unit. Feed rate can be adjusted to suit the problem specification. After passing through the shredder section, the material falls into the granulator section and is reduced to granulator fineness.

The machine is especially suitable for in-house recycling. Different plastic parts can be charged together. The vertical design of the mill also brings advantages when cleaning, enabling easy access to the rotor and cutting knives. This guarantees fast cleaning and reduces downtime.

Sorted resources

Tomra develops collection and sorting systems that optimise resource recovery and minimises waste. Its sensor-based sorting solutions – including

Right: Hosokawa's Polyplex PPC 50/120 combines a shredder and granulator in a single vertical shaft



Right: Tomra showed several sensor-based sorting solutions at K2019, including Autosort Flake

Autosort, Autosort Flake and Innosort Flake – were on show at K2019.

Volker Rehrmann, executive vice president of Tomra Recycling & Mining, said: "Continuing to use our resources in an unsustainable and inefficient way should no longer be an option. At Tomra, we continue to develop new sorting solutions."

The Innosort Flake, seen at the show, is a good example of "positively impacting and purifying the recycling process", he said. Since its launch earlier this year, it has shown to be a good dual-sorting solution for plastic recovery facilities – sorting plastic fractions of 2-12mm by colour and simultaneously by polymer types. This means that large amounts of contaminants can be removed – and the potential loss of PET flake material can be significantly reduced.

This all-in-one solution with ultra-high resolution and specialised sensor configuration offers high performance results.

"It's an economically favourable sorting solution providing a quick return on investment and scalable flexibility," said the company.

The company is also developing ways of further improving the sorting process. Based on improvements in collecting and managing large amounts of data – and the development of artificial intelligence – Tomra has developed deep learning software for sensor-based sorting.

The software can learn individually from a large amount of collected data, equalling or even surpassing sorting results achieved by humans and typical machines, it says. By combining deep learning models with Tomra's sorting solutions, objects that could previously not be separated can now be sorted with high purity levels, it claims.

"In this regard, deep learning is considered as a promising approach when it comes to addressing the increasing challenges in waste sorting, such as new waste streams, and objects being detected but not successfully ejected – or covered by other materials," said the company.

Single-stage shredder

Vecoplan introduced a single-stage shredder from its new VIZ (Vecoplan Infinity Shredders) series at K2019. The machine can be equipped either with the high-torque, quick-start HiTorc drive from the company's VAZ series, or with the ESC, which is Vecoplan's frequency-controlled, belt-type direct drive. Both systems are patented and are designed for high energy efficiency.

The VIZ shredder offers flexibility in terms of the cutting geometry. It can be precisely adapted to different input and output requirements by changing the rotors and blades and by selecting the right screen, says Vecoplan. The performance can be precisely determined by the interface. Thanks to the efficient machine concept, users benefit from short set-up times and a high level of adaptability to cater for different outputs, it says.

"Our new rotor solution offers numerous advantages," said Martina Schmidt, head of Vecoplan's recycling and waste division. "Thanks to the bolted tool holder plates with variable cutting tip sizes, rotor changes are now a thing of the past."

Users only have to exchange the plates to quickly adapt the cutting geometry to different output grain sizes. The rotor remains in the machine. Even cutting tip changes can be carried out with ease – there is no need to touch the rotor. If a tool holder is damaged, only the relevant segment has to be replaced.

Vecoplan has also optimised the ram and revised the machine design. Thanks to the improved ram height, the VIZ can now handle entire bales. The working chamber of the machine was also enlarged, permitting reliable shredding of bales with model 1300 and higher. In a comparable Vecoplan model range this is possible only with sizes 1700 and higher, although the smaller version would have the necessary throughput.

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.buntingeurope.com**
- **www.cmg.it**
- **www.hellweg-maschinenbau.de**
- **www.brunofolcieri.com**
- **www.herbold.com**
- **www.hosokawa-alpine.com**
- **www.tomra.com**
- **www.vecoplan.com**

Wood-Plastic Composites

4-5 November 2020
Vienna, Austria

The international business conference & exhibition for the wood-plastic-composites industry

SAVE THE DATE

Be part of the discussion on the challenges and opportunities for wood-plastics composite materials.

Five good reasons to attend:

- Hear top experts talk about the current wood-plastic composites industry
- Learn about new technology
- Review market trends
- Benchmark your company against other leading players
- Network with other professionals in the wood-plastic composites industry

www.ami.ltd/attend-WPC

CONTACT US

Emily Nicholson
Conference Organiser
T +44 (0) 117 314 8111
E emily.nicholson@ami.international

Organised by:

AMI

Media supporter:

Pipe and Profile EXTRUSION

Plastics Recycling Technology

Exploring the future of plastics recycling - new ways to optimise productivity, increase recycling rates, quality and profitability

16 - 17 September 2020
Hotel Savoyen Vienna, Austria

BOOK YOUR PLACE

- Gain insight into global market trends and the latest recycling technology
- Learn from industry experts about changes to regulations, and process optimisation
- Network with key stakeholders from the plastics recycling supply chain

Previous attending companies include:

AVERY DENNISON • CHANEL PARFUM BEAUTÉ • DECATHLON • ELLA'S KITCHEN • EREMA • EUROPEAN PLASTICS CONVERTERS (EUPC) • H&M GROUP • METRO AG • NESTLÉ • P&G • PEPSICO • PHILIPS • RAVAGO • RPC-BPI GROUP • TARKETT • TETRA PAK • TOYOTA MOTOR EUROPE • VEOLIA POLYMERS

SECURE YOUR PLACE
www.ami.ltd/attend-recycling

"Very informative and on point!"
APTAR GROUP

Sponsored by:

CMG GRANULATORI

Starlinger

AQUAFIL ENGINEERING

Media supporters:

RE III

Plastics Recycling WORLD

Injection WORLD

Pipe and Profile EXTRUSION

Compounding WORLD

Film and Sheet EXTRUSION

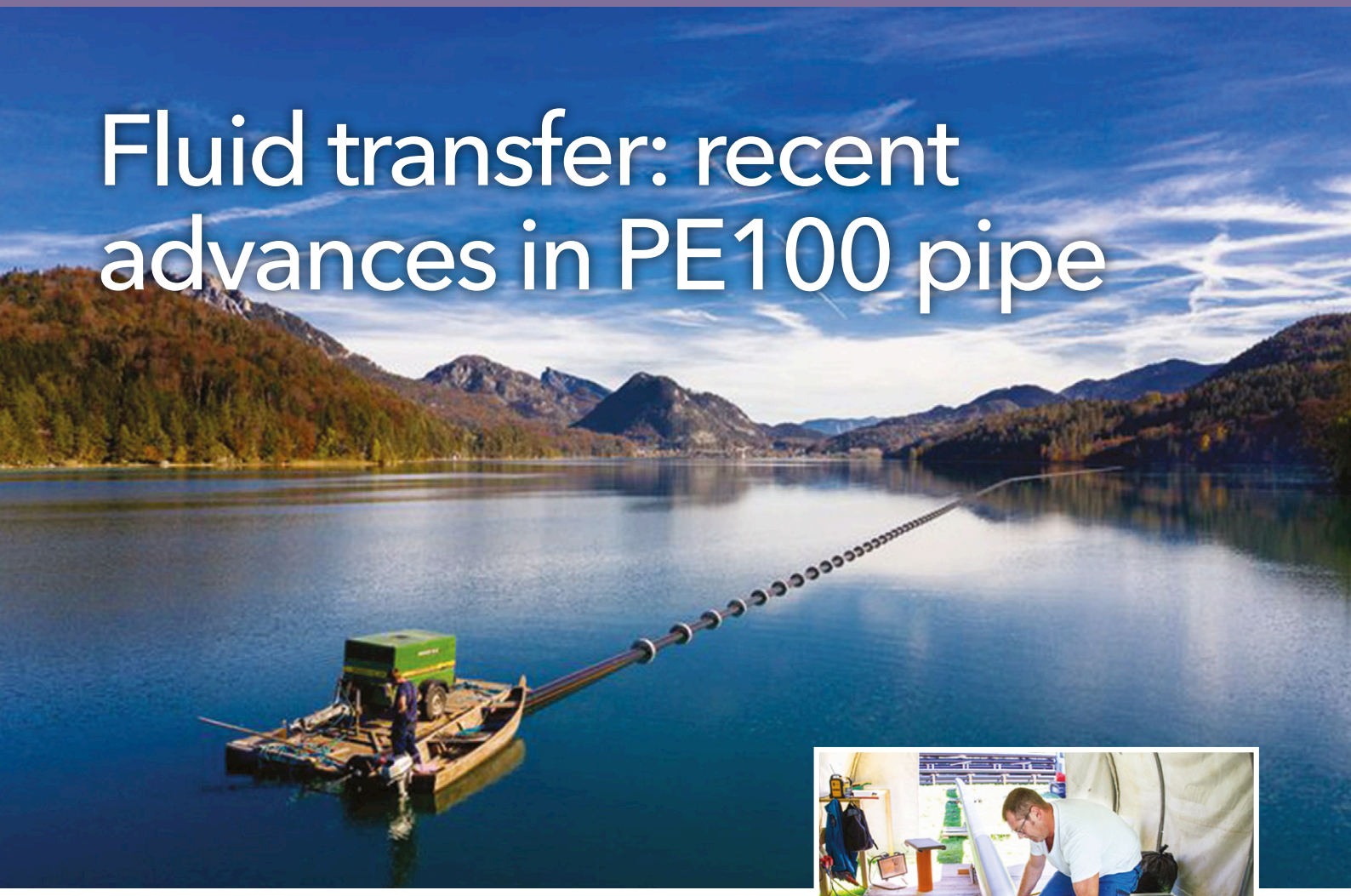
CONTACT US

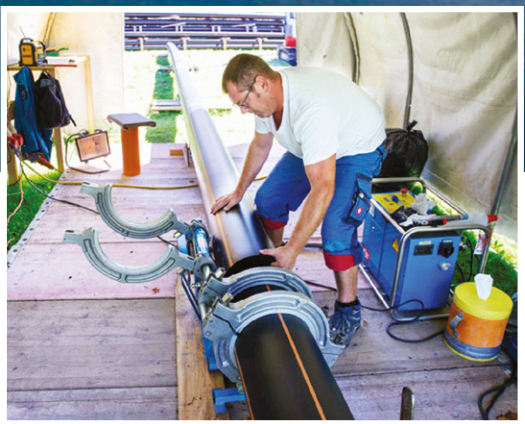
Carole Charrade, Conference Organiser

UK +44 (0) 117 314 8111
USA +1 610 478 0800
E carole.charrade@ami.international

AMI Bringing the plastic industry together.

Fluid transfer: recent advances in PE100 pipe





High mechanical strength – and a rigorous testing regime – means that PE100 is often the material of choice for demanding pipeline projects

When a pipe system is installed, one of the main criteria for success is how long it will last. This is particularly relevant for large pipes – which are not easy to replace – and in many cases these will be made from PE100, thanks to its longevity.

Agru of Austria, for instance, recently supplied PE100-RC pipe for a backup pipeline – to transport wastewater across the Fuschlsee lake in Salzburg.

Here, a PE sewer pipeline has already been in operation since 1975, so will soon reach its calculated service life of 50 years. A parallel 4,200m backup sewage pressure pipeline is needed – so that it can be used in case the old line fails.

The new line crosses the entire width of the lake. It has the capacity to transport 600-900 cubic metres per day of wastewater – from the municipality of Fuschl am See to a treatment plant.

Agru has supplied 4,248m of the PE100 pipes in OD 280mm and SDR 17 (16mm wall thickness, maximum 10bar pressure), as well as fittings and a CNC-controlled butt-welding machine. The black PE 100-RC pipes – with axially running, brown colour stripes for clear identification as wastewater pipe – have high resistance to point loads and stress cracks. The system ensures extra safety during decades of operation on the rocky bottom of the lake at a depth of 66m – at a temperature of 4°C all year round. In addition, the material offers good resistance to chemicals in household wastewater (such as alkalis and surfactants).

Peer Wasserbau was given around two months to weld the pipeline – from 18m long pipe rods – before floating it into the pipeline route and sinking it. The Agruline pipes are joined using butt-welding machine. Since individual pipe rods are joined exclusively with the pipe material, a monolithic, continuously corrosion-resistant piping system is created, says Agru.

Christian Winkler, managing director of the Reinhalteverband Fuschlsee-Thalgau, said: "The

Main image: Agru's PE100-RC pipe transports wastewater across a freshwater lake in Austria

Fuschlsee is of drinking water quality and that should remain so. The new lake pressure pipeline serves as a backup and provides us with additional safety, as it can go into operation within minutes in an emergency."

Together, the partners chose a plastic pipeline made of Agru's PE 100-RC material, as studies showed that a PE pipeline of this quality can last up to 80 years.

"We are satisfied with the planning and delivery as well as with the quality of the Agru pipeline," he said.

Water update

Separate to this – in a suburb of Vienna – water company EVN has renovated a piping system that has been in place since the 1960s. With dimensions of OD 560mm and 630mm, the capacity of the system has been doubled. The 20km long pressure pipeline, supplied by Agru, is made of its stress crack resistant PE 100-RC material.

The pipes were delivered to the site in 20m lengths in order to reduce the number of required welds. In addition, around 200 pipe bends and more than 250 electrofusion couplers were used. This way, clean and safe drinking water was provided for 150,000 people in the district, for a total investment of around €10 million (US$11m). The new pipeline has a total weight of about 1400 tonnes.

Fittings were of particular importance in this project. Until now, only pipes made of PE 100-RC could be laid without sand-bed, as PE 100-RC fittings were not available. However, by providing a complete PE 100-RC system – including both pipes and fittings that were precisely machined to size – Agru ensured that the entire pipeline could be installed uniformly and without special treatment of the fittings.

Right: HDPE pipe from Pipeline Plastics is delivering drinking water to North Pole, Alaska, after tests found chemicals in the local groundwater

HDPE for Alaska

A winner of last year's **Plastics Pipe Institute** (PPI) awards included a pipe application that carries potable water across Alaska, USA.

Last year, Alaska's Department of Environmental Conservation discovered chemicals in the drinking water in the Fairbanks region. The chemicals, perfluoroalkyls, are used in products such as firefighting foam, and had found their way into the groundwater.

A long-term solution for the inhabitants of the city of North Pole has been to install a new HDPE potable water pipeline in sizes of 6, 8,10, 12 and 16in – pre-insulated with polyurethane foam – to ensure uninterrupted source of water during Alaska's harsh winters. HDPE pipe, from **Pipeline Plastics**, provided a tough, durable, seismic resistant supply line.

In all, the project consists of 35 miles of pipe, expansion of the North Pole water treatment plant and a 750,000 gallon potable water reservoir.

At the same time, PPI has helped the US-based Municipal Advisory Board (MAB) to update its specification guide for PE4710 pipe – which is similar to PE100 – in certain applications.

The *MAB-3 Model Specifications Guide for PE 4710 Buried Potable Water Service, Distribution and Transmission Pipes and Fittings* is now available in updated form. The document covers system design parameters, quality control, pressure classes, pipe and fittings, training and inspection, joining methods such as butt fusion, saddle fusion, socket fusion, electrofusion and mechanical, plus open cut and trenchless installation for water services (0.75 to 3in per AWWA C901), and for water distribution and transmission (4 to 65in per AWWA C906). Additionally, MAB-3 provides an appendix with a list of references from ASTM, AWWA, MAB, NSF and PPI.

"This model specification was originally prepared and now has been updated by MAB members and associates as a service to the water industry," said Camille George Rubeiz, co-chair of MAB. "It is intended as a guide for engineers, users, contractors, code officials, and other interested parties for use in the design, and installation of HDPE pressure water piping systems. The local utility or engineer may need to modify this model specification to adapt the document to local conditions, operations, and practices."

The document is available free of charge **here**.

Lasting a century

The **PE100+** association, which represents materials producers, says that various technical assessments and studies have shown that buried PE pipes

Left: CEIS now carries out qualification tests of PE100 compounds for pressure pipes

have an expected service lifetime of more than 100 years – exceeding the predicted design point of the common extrapolation methods for plastic pipes (ISO 9080 and ISO 12162).

This is for a variety of factors, including lower real pressure levels (stress) over the pipe's lifetime, lower real temperatures in the ground, consistent zero-to-plus range tolerances for wall thicknesses and safety factors applied in the design stages.

PE100+, in collaboration with The Plastic Pipes & Fittings Association (**Teppfa**), has published a position paper on the subject. The paper says that the design life (usually 50 years) must not be confused with actual lifetime.

"Polyethylene material developments started around 1953 with the first generations of PE40, PE50 and PE63," said the paper. "These materials have exceeded 50-70 years' service life and are partially still in service."

At the same time, PE100+ is celebrating its 20th anniversary. One of its roles is to monitor the test methods for PE pressure pipes in round-robin tests – which involves it checking to make sure that the independent test institutes verifying pipes are performing tests in ways that make them comparable.

"We need to be sure that for any given material, different test institutes provide the same outcomes within a certain bandwidth," said says Hans Pierik, president and chairman of PE100+. "We also provide this information to the ISO committee that is responsible for the updating test method standards."

Today, fittings and all the tools used to install pipes are also organised to comply with PE100.

"It's not just about material quality but also about pipe diameter and thickness based on the pressure resistance of the material," said Pierik. "If all pipes have the same dimensions, it doesn't matter if the pipe comes from Producer A and the fitting from Producer B – everything fits together."

While there is still no uniform resin or pipe requirement for resistance to slow crack performance, PE100+ Association is working to develop new and faster – but still reliable – accelerated test procedures. These include a Strain Hardening Test (SHT), originally developed by SABIC, which is now an ISO standard ISO 18488. Also, accelerated versions of the FNCT (Full Notch Creep test ISO 16770) and NPT (Notch Pipe Test ISO13479) have been developed.

"We see many opportunities in emerging and developing countries," he said. "In China, for instance, the new national standard GB/T 13663 for PE piping systems for drinking water applications was released this year."

Testing expansion

PE100+ recently added CEIS of Spain to its group of international laboratories that carry out the qualification tests of PE100 compounds for pipes.

CEIS is an independent Spanish laboratory with more than 20 years' experience providing support in the Assessment of Conformity to national and international Certification Bodies, as well as providing specialised technical assistance in its fields of expertise.

PE100+ has defined a control system for raw materials from a small group of manufacturers, which includes three fundamental properties: Creep Rupture Strength (CRS), Stress Crack resistance (SCR) and Resistance to Rapid crack propagation (RCP) – in accordance with ISO 1167, ISO 13477 and ISO 13479.

CEIS says it will now carry out these tests with the quality and frequency defined by PE100+.

And at K2019, **SABIC** showcased voltage cable ducts made from its Vestolen A Rely 5944HT material – a PE100 grade – which can operate at elevated temperatures and for an extended lifetime. These ducts are typically used in solar and wind farms and are used to protect the high voltage underground cables that lead from the installation.

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.agru.at**
- **www.plasticpipe.org**
- **www.pipe.us (Pipeline Plastics)**
- **www.pe100plus.com**
- **www.teppfa.eu**
- **www.ceis.es**
- **www.sabic.com**

AMI

WANT TO GROW YOUR BUSINESS?

Take advantage of our targeted databases of 20,000+ extruders, compounders, moulders and plastics recyclers worldwide

- Stay competitive with our reliable and up to date data
- Gain insight into the capacities of each production site
- Access senior decision makers
- Analyse polymer, machinery usage and end use market information
- Get a graphical industry snapshot
- Export data easily into your CRM

5,000+ companies have identified and targeted customers in new markets.

Do you want to join them?

Contact us to find out more

sales@ami.international

www.ami.international/databases

FATIGUE TESTING

Automated specimen handling for DMA

Metravib, a specialist in dynamic mechanical analysis, has improved DMA and fatigue testing by extending the capabilities of its DMA+ series.

Its Xpander is an automated specimen handling system that is designed to boost the productivity of the DMA+ series and can provide tests round the clock in compression, tension and shear.

The DMA+ series testing capabilities are extending with a brand new Multitest crack growth software module coupled to a motorised video camera.

Using specimens up to 80mm wide, it is possible to follow up to four cracks in one single test. The crack length measurement can be performed with a resolution better than 2 microns.

"Xpander and the new DMA+ series have been designed taking account of industrial expectations in terms of accuracy, performance, productivity and ergonomics, as expressed by worldwide leaders in the rubber and polymers sector.

"With 50 years of experience in the field, we are the ideal partner," said Hugues Baurier, worldwide sales manager.

› **http://metravib.acoemgroup.com/index-metravib.php**

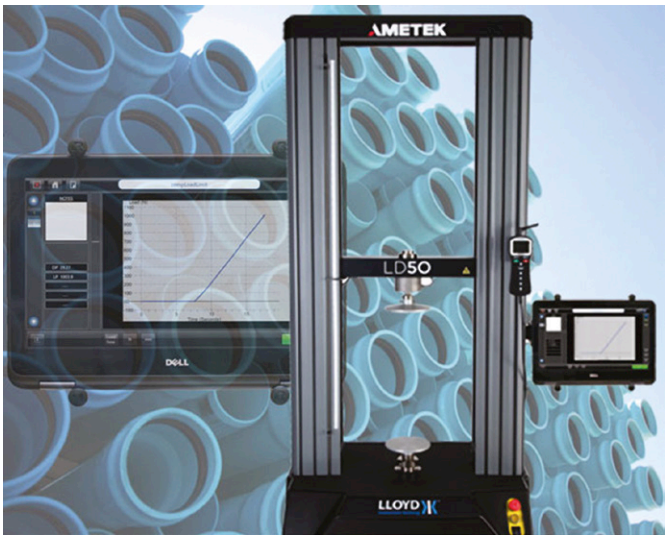
MATERIALS TESTING

Tablet brings ease of use to materials testing regimes

Lloyd Instruments has introduced a new tablet for use with its LD Series of materials testing machines – with capacities ranging from 5 to 100 kN.

The tablet is designed for users who are looking for an easy, reliable digital materials testing solution where no computer or knowledge of programming language is required. When combining the tablet with an LD Series materials tester, the machine is turned into a standalone test machine that loads all data directly into the tablet. The 2-in-1 functionality of the tablet offers the user the flexibility of placing the tablet directly on the test machine or unattached next to the machine.

With an intuitive interface and quick test functionalities – such as defining specific tests as favourites on the start-up screen – setting up a test, selecting test runs, and exporting results takes only a few keystrokes.



The 13in tablet features an easy-to-read, colour touchscreen and is aimed at routine applications requiring the measurement of peak loads and breaking loads. Test results can be viewed either as a graph or in a tabular format showing multiple test results. The results are automatically saved, offering the user the ability to recall them at a later time to analyze or continue testing a batch run.

Test results can be exported into both PDF and .csv files. Data storage can be done internally or on an external server, to provide an efficient way of documenting yields, product quality, and performance.

The tablet can be password protected and features two levels of user access: supervisor and operator.

› **www.ametektest.com**

CHEMICAL ANALYSIS

Screening samples for phthalates

Actus Analytical has developed an FTIR method to screen polymer samples and detect ortho-phthalate plasticiser to levels of 0.1% (1000 ppm).

The method is positioned as a quality control tool to allow processors to quickly determine whether or not a sample contains an ortho-phthalate. FTIR is well suited for this kind of quality control tasks, says the company, because it is a non-destructive, simple, and inexpensive test that gives immediate results. In addition, the chemometric model allows its use by non-technical personnel.

The technique was developed for the Agilent 4500 FTIR, which the company says is well suited to the task due to its power and patented permanent calibration.

› **www.actusanalytical.com**

SCREWS

Barrier screw solves problem of rejects on pipe extrusion line

A new Xaloy barrier/mixing screw, designed by Nordson, has helped a pipe extruder to solve a long-standing series of production problems.

A production line at US-based pipe manufacturer Polyethylene Technology was exhibiting wide fluctuations in throughput caused by surging and – for heavy-wall HDPE pipe – consistently exhibited variation from the target wall thickness of 0.097in (2.46 mm).

"We tried all sorts of solutions," said Brad Williams, senior manufacturing manager. "We looked for problems with the motor drive and the puller, tested four or five different resins, and finally got a new screw and relined barrel – all with no success. Our gravimetric extrusion control showed fluctuations occurring every five or 10 seconds."

Another problem was poor mixing of carbon black, where an addition level of 2% was required.

"We couldn't get a good mix, and there were always areas of the pipe with too little carbon black," he said.

The problems were solved by using the Xaloy Efficient barrier screw with a Nano mixer in the metering section.

Brad Casale, Nordson regional sales manager, said: "By preventing premature break-up of solids and increasing melting rates, the screw enhanced mixing and increased throughput on the line. The Nano mixer provided intensive mixing of the carbon black."

As well as solving the surging problem, and delivering a homogeneous melt, the new screw increased the output of the line by around 12%.

› **www.nordson.com**

TWIN-SCREW EXTRUSION

Conical extruders add an edge to production

Egger, an Austrian-owned manufacturer of edge strips – which are mainly used in furniture – is using conical twin-screw extruders from Battenfeld-Cincinnati in its Turkish operations.

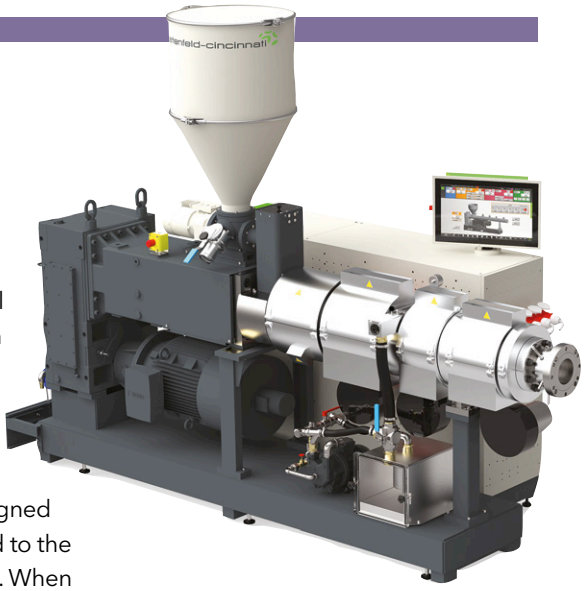
Egger Dekor, based in Gebze in Turkey, is using several ConEx NG 65 models. Egger is mainly a wood processing company but uses the machines to make edge strips from ABS and PVC.

"In addition to ABS and PVC, which we process in roughly equal quantities, we make a small amount of special strips from PMMA," said Ender Celebi, technical plant manager. "Our edge strips are sold in some 70 countries worldwide."

While ABS strips are more in demand in Western and Central Europe, PVC strips are common in Eastern Europe and North America.

Egger Dekor installed its first ConEx NG 65 in 2017. Some existing components designed by the customer were connected to the extruder to form a complete line. When choosing the new extruders, it was important for all raw materials to be processed on the same extrusion lines.

"Together with the customer, we processed several compounds at our technical lab in Vienna, to demonstrate the performance of our new conical extruders," said André Wieczorek, CTO of Battenfeld-Cincinnati.



A long preheating zone and an optimised screw design ensure a balanced ratio of mechanical and thermal energy input, so different materials can be processed, and tool pressures of up to 520 bar applied.

› **www.battenfeld-cincinnati.com**

Download these new product brochures

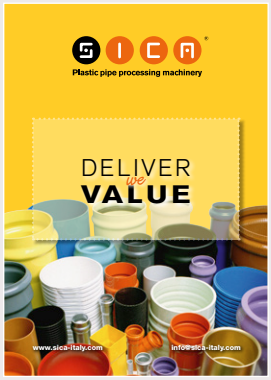
Simply click on the brochure cover or link to download a PDF to your PC or smartphone

STRUKTOL: PLASTIC ADDITIVES

Struktol offers an extensive range of additives to enhance processing and performance of virgin and recycled plastic compounds. Products range from dispersants and wetting agents, through lubricants to compatibilisers.

› CLICK HERE TO DOWNLOAD

SICA: PIPE PROCESSING



This brochure from Sica covers the company's full range of performance pipe finishing equipment including its novel TRS-W cutting and chamfering, Unibell electric belling and robotised packaging machines.

› CLICK HERE TO DOWNLOAD

HEXPOL: DRYFLEX TPE

The Dryflex family of TPEs from Hexpol TPE add soft touch appeal, function performance and product safety features in a range of consumer, automotive, industrial and packaging applications. Find out more in this brochure.

› CLICK HERE TO DOWNLOAD

DAVIS-STANDARD: PIPE & PROFILE

Davis-Standard supplies a wide range of extruders and extrusion systems for pipe, profile and tubing applications, including medical tubing. This brochure details the range of equipment available and key performance benefits.

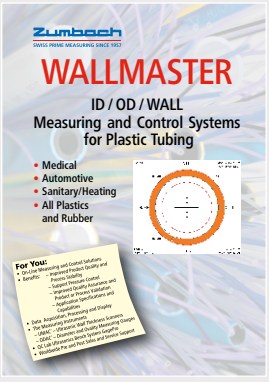
› CLICK HERE TO DOWNLOAD

UNICOR: PIPE CORRUGATION

This brand new 48-page brochure from Unicor provides detailed insight into the design, production, applications and advantages of corrugated pipes. It includes specification data on the company's wide range of pipe corrugation equipment.

› CLICK HERE TO DOWNLOAD

ZUMBACH: MEASUREMENT CONTROL



This eight-page brochure details the main features of Zumbach's Wallmaster measurement and control system for improving product quality, process stability and data capture in plastic tube and pipe extrusion applications.

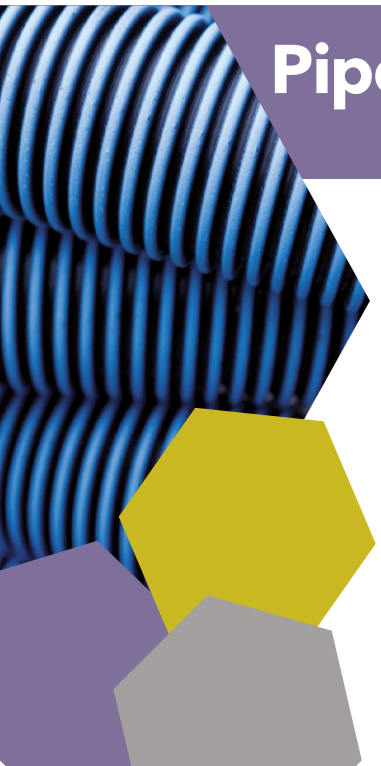
› CLICK HERE TO DOWNLOAD

If you would like your brochure to be included on this page, please contact Claire Bishop claire.bishop@ami.international. Tel: +44 (0)1732 682948

Fränkische

Head office:	Königsberg, Germany
President:	Otto Kirchner/Julius Kirchner
Founded:	1906
Ownership:	Private
Turnover (2019):	Around €580 million
Employees:	Around 4,500
Profile:	Fränkische, founded in 1906, has grown to become a leading supplier of pipes – made from both metal and plastic – to industries including civil engineering and automotive. Its wide portfolio of products includes conduit systems, sewage pipe, radiant heating systems and cable protection. Its divisions include drainage systems, electrical systems, building technology, automotive and industry.
Product lines:	Within drainage systems, its offerings include: Kokofil and Multifil lines for agricultural drainage (which have either coir or PP fibre wrapping); its PVC 'Opti-Drän' pipe – and accessories – for building drainage; the AquaPipe range of HDPE transport pipe (corrugated outside, smooth inside) for use on highways and roads; and its Robukan range of sewer pipe, made from PP. Within electrical systems, it offers its Kabuflex range of PE cable conduit, including a UV-stabilised grade.
Factory locations:	The company has three manufacturing sites in Germany – and 19 manufacturing or sales facilities elsewhere. These include bases in the USA, Mexico, UK, Czech Republic, Morocco, Tunisia, Italy, China and India. Across all its sites, the company says it makes 13,000 articles – and more than 2m metres of pipe – every day. The company recently expanded the Western plant at its main Königsberg facility – which now handles all logistics for its industrial pipes division.

To be considered for 'Extruder of the Month', contact the editor on lou@pipeandprofile.com



Pipe and Profile EXTRUSION FORTHCOMING FEATURES

The next issues of Pipe and Profile Extrusion magazine will have special reports on the following topics:

May 2020
Pipe die developments
Pipe joining technology
Pressure pipes
PEWE Europe 2020 preview

June 2020
Pipe corrugators
Profile die developments
PVC recycling
Plastic pipes in infrastructure

Editorial submissions should be sent to Lou Reade: lou@pipeandprofile.com

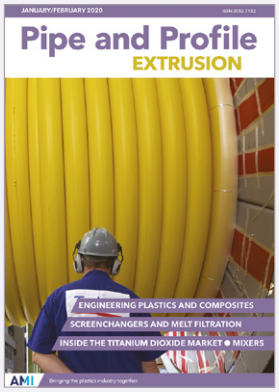
For information on advertising in these issues, please contact:
Claire Bishop: claire.bishop@ami.international Tel: +44 (0)1732 682948
Levent Tounjer: levent.tounjer@ami.international Tel: +44 (0)117 314 8183

Keep informed: read our latest editions

AMI publishes five process-specific FREE plastics industry magazines. Simply click on the cover below to read each magazine. Or download the issue in the relevant Apple or Android app

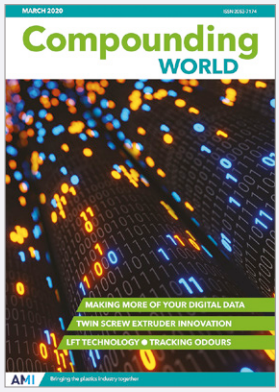
Pipe and Profile
March 2020
The March edition of Pipe and Profile Extrusion magazine looks at the latest ideas in screw production. It also reviews developments in laboratory extruders, computer-based process simulation, and polyolefin applications.

› CLICK HERE TO VIEW



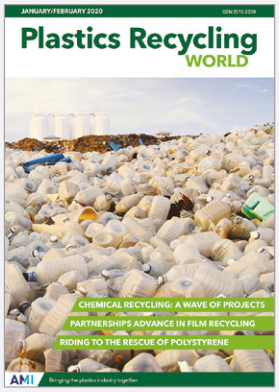
Pipe and Profile
January/February 2020
The January/February issue of Pipe and Profile Extrusion looks at applications using engineering plastics and composites, provides updates on mixing technology and melt filtration and delves into the titanium dioxide market.

› CLICK HERE TO VIEW



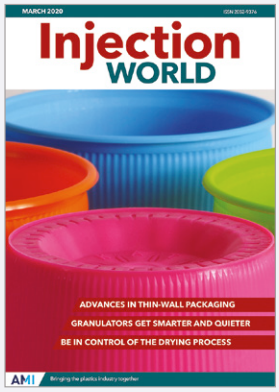
Compounding World
March 2020
The March 2020 edition of Compounding World shows how suppliers of twin-screw extruders continue to find ways to get more from this flexible machinery. Plus features on long-fibre thermoplastics, simulation and monitoring odour, and regular news on plastics compounding.

› CLICK HERE TO VIEW



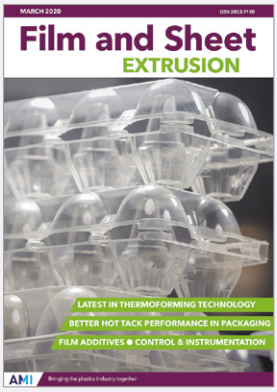
Plastics Recycling World
January/February 2020
The January/February edition of Plastics Recycling World takes a deep dive into chemical recycling, with features on the many technologies being developed for polyolefins and polystyrene. Plus the latest on film recycling technology and projects.

› CLICK HERE TO VIEW



Injection World
March 2020
The March edition of Injection World magazine looks at the latest mould and machinery developments for thin wall moulding. Plus the latest introductions in granulation and material drying technology.

› CLICK HERE TO VIEW



Film and Sheet
March 2020
The March issue of Film and Sheet Extrusion has features on the latest applications in thermoforming, additives for film production and optimised film structures with hot tack/ seal integrity.

› CLICK HERE TO VIEW

Take out your own FREE subscriptions to any of the magazines. Click on the logos below to simply register on-line.

Compounding WORLD
Film and Sheet EXTRUSION
Pipe and Profile EXTRUSION
Injection WORLD
Plastics Recycling WORLD

GLOBAL EXHIBITION GUIDE

2020	**12-14 May**	JEC World, Paris, France **NEW DATE**	www.jec-world.events
	12-15 May	Elmia Polymer, Jönköping, Sweden **POSTPONED**	www.elmia.se
	13-15 May	Plastic Expo, Osaka, Japan	www.plas.jp/en-gb.html
	19-22 May	Plastpol, Kielce, Poland **POSTPONED**	www.targikielce.pl
	15-18 June	Plastivision Arabia, Sharjah, UAE	www.plastivision.ae
	16-19 June	FIP, Lyon, France	www.f-i-p.com
	24-27 June	Interplas Thailand, Bangkok, Thailand	www.interplasthailand.com
	3-6 August	Chinaplas, Shanghai, China	http://www.chinaplasonline.com
	8-10 September	Feiplar, Sao Paulo, Brazil	www.feiplar.com.br
	9-11 September	Plastics, Printing & Packaging, Dar-es-Salaam, Tanzania	www.expogr.com/tanzania/pppexpo
	9-13 September	Taipei Plas, Tapei, Taiwan	www.taipeiplas.com.tw
	10-12 September	Plasti & Pack, Lahore, Pakistan	https://plastipacpakistan.com
	21-25 September	Colombiaplast, Bogota, Colombia	www.colombiaplast.org
	29 September-1 October	Interplas, Birmingham, UK	www.interplasuk.com
	7-8 October	Plastics Extrusion World Expo Europe, Essen, Germany **NEW DATE**	https://eu.extrusion-expo.com
	13-17 October	Fakuma, Friedrichshafen, Germany	www.fakuma-messe.de
	4-5 November	Plastics Extrusion World Expo USA, Cleveland, USA	www.extrusion-expo.com/na/
	24-27 November	Argenplas, Buenos Aires, Argentina **NEW DATE**	www.argenplas.com.ar
2021	**4-7 May**	Plast 2021, Milan, Italy	www.plastonline.org/en
	17-21 May	NPE 2021	www.npe.org

AMI CONFERENCES

14-16 September	Polymer Sourcing & Distribution, Hamburg, Germany
16-17 September	Plastics Recycling Technology, Vienna, Austria
23-24 September	Medical Tubing & Catheters, San Diego, CA, USA
27-28 October	Plastic Pipes in Infrastructure, Hamburg, Germany
2-3 November	Profiles USA, Cleveland, Ohio, USA
4-5 November	Wood-Plastic Composites, Vienna, Austria

For information on all these events and other conferences on film, sheet, pipe and packaging applications, see

www.ami.international

PLASTICS RECYCLING WORLD EXPO

POLYMER TESTING WORLD EXPO

3 - 4 June, 2020

ESSEN, GERMANY

PLASTICS EXTRUSION WORLD EXPO

COMPOUNDING WORLD EXPO

4 - 5 November, 2020

CLEVELAND, OHIO

www.ami.international/exhibitions